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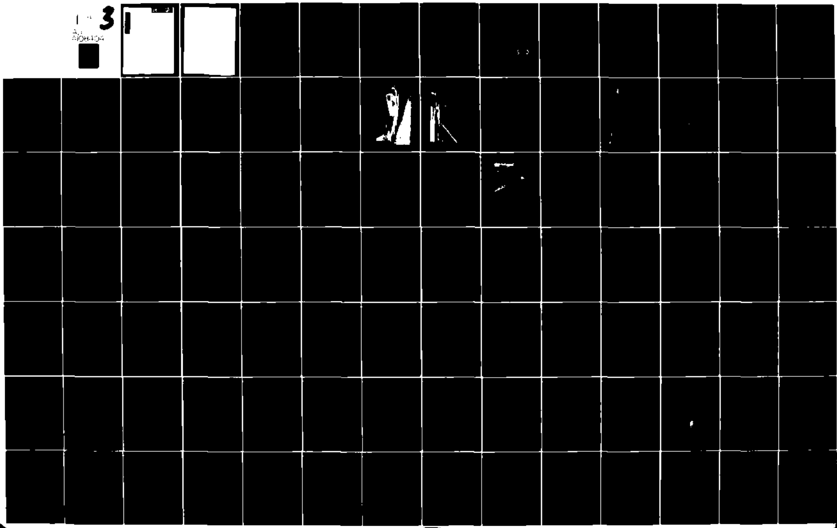

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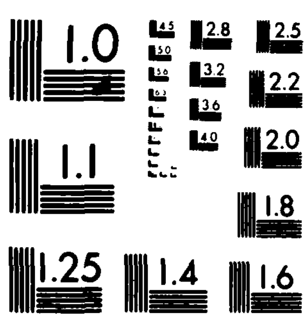

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This report is the fifth in a series which documents the Probability of Detection Task of the SAR project at the U.S.C.G. R&D Center.

16. Abstract

Since September 1978, side-looking airborne radar (SLAR) detection data have been gathered in conjunction with four visual detection experiments conducted by the U.S.C.G. R&D Center. These are part of a series of experiments designed to improve search planning guidance contained in the National Search and Rescue Manual.

HC-130 aircraft, equipped with either the Airborne Oil Surveillance System (AOSS) or SLAR/radar image processor (SLAR/RIP) configuration of the AN/APS-94C or D SLAR, conducted controlled searches for life rafts, small boats, and 41- to 95- foot Coast Guard vessels in Block Island Sound or open ocean.

Through the use of a microwave tracking system and SLAR data, the positions of searchers and targets were accurately reconstructed to facilitate the verification of detections on SLAR films or video tape. These data were used to evaluate the effects of environmental and controllable parameters on SLAR detection of the various target types.

Of the 12 parameters investigated, target size/composition, search altitude, swell height, wind speed, and humidity/precipitation were found to have a significant influence on SLAR detection performance. Upper-bound lateral range curves and sweep widths for SLAR search are included. Real-time performance tests for AN/APS-94D SLAR and system performance tests for new SLARs (AN/APS-131) are recommended. More environmental conditions (severe), target types, and gain/altitude combinations should be tested. Improved image processing capability and operator training are needed. Real-time, operational lateral range curves for SLAR should be developed as inputs to the computer-assisted search planning (CASP) system.

17. Key Words
Search and Rescue, Side Looking Airborne Radar, Surface Target Detection, Electronic Search

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METRIC CONVERSION FACTORS

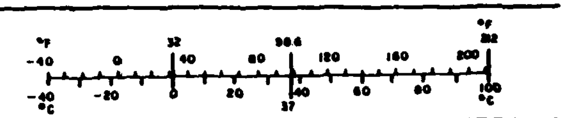
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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INTRODUCTION

1. Purpose of Report

Analysis results of four side-looking airborne radar (SLAR) detection experiments conducted by the Coast Guard Research and Development Center are presented in this report. An evaluation of SLAR effectiveness as a sensor in search and rescue (SAR) operations involving life rafts, 13- to 21-foot boats, and 41- to 95-foot boats is made. Influential parameters are identified. Also presented are non-operational lateral range curves and sweep widths which represent an upper bound on the detection capability of present Coast Guard SLAR systems.

2. Background

While SLAR has been used aboard HC-130B aircraft primarily for airborne surveillance of oil spills and icebergs, it has potential for use as a SAR sensor because of its superior resolution and detection range compared to standard search radars, and its image-processing capabilities. In situations where other methods of search are ineffective or impossible, SLAR, which is not as susceptible to adverse environmental conditions, may provide a means of detecting SAR targets. SLAR also has the capability to search very large areas in a short period of time, making it a valuable sensor in time-critical situations.

To evaluate the effectiveness of SLAR for the Coast Guard SAR mission, SLAR searches were conducted in conjunction with three visual detection experiments in Block Island Sound during fall 1978, fall 1979 and spring 1980. In addition, SLAR searches were conducted on three days during a January 1979 leeway drift experiment off the Florida coast. SLAR systems were not available for testing during the spring 1979, fall 1980, and winter 1981 visual detection experiments. The new AN/APS-131 SLAR systems scheduled for installation aboard the HC-130 and the HU-25 will be available for testing in the near future.

Analysis of the collected data has been conducted to determine the influence that certain environment-related and controllable parameters have on SLAR detection of the target types described above. Parameters that were investigated are:

Environment-Related	Controllable
Wind speed	Target size and composition
Swell height	Antenna polarization
Relative humidity	Gain (SLAR/RIP only)
Precipitation	Altitude
Image background	Lateral range
Visibility	Relative wave direction

The ranges of these parameters encountered during the experiments are given in Table 1.

3. Description of SLAR

The SLAR units tested during the experiments are the Airborne Oil Surveillance System (AOSS) and SLAR/Radar Image Processor (RIP) system. Both of these units are versions of the AN/APS-94C or D real aperture radar system interfaced with an onboard computer system, television monitors, and photographic and videotape recorders.

The AOSS SLAR employs two permanent side-mounted antennae: an 8-foot vertically polarized antenna on the right and a 16-foot horizontally polarized antenna on the left fuselage of the CG 1347 HC-130B aircraft. The vertically polarized antenna has been found to be effective in detecting changes in sea-return (such as those caused by oil spills), while the horizontally polarized antenna has proven more efficient at detecting "hard" targets such as ships and icebergs. The SLAR/RIP system employs a single, 16-foot long removable antenna mounted below the tail of the CG 1351 HC-130B aircraft, and is equipped with a RIP which performs sophisticated image analysis and storage/retrieval functions.

Table 1. Range of Parameters Investigated During SLAR Experiments

SLAR Type	Target Type	Lateral Range (nm)	Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization	Image Background	Gain[1]	Precipitation	Relative Humidity (%)	Wave Direction[1] (relative to beam)
AOSS SLAR	Life rafts	0-27	500-5500	1-15	3-30	0.5-3	Vertical and horizontal	Clear/light Scattered/dark	N/A	Clear Fog Rain	59-100	Perpendicular Parallel
	Small boats	0-27	1000-5500	1-15	3-17	0.5-4	Vertical and horizontal	Clear/light Scattered/dark	N/A	Clear Rain	55-100	Perpendicular Parallel
	41'-95' Coast Guard vessels	0-27	1000-5000	1-15	3-12	0.5-4	Vertical and horizontal	Clear/light Scattered/dark	N/A	None	55-100	Perpendicular Parallel
SLAR/RIP	Life rafts	0-45	1000-7500	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	1-7	None	54-94	Perpendicular Parallel
	Small boats	0-45	2000-5000	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	2-7	Clear Fog Rain	59-100	Perpendicular Parallel
	41'-95' Coast Guard vessels	0-45	1000-7500	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	1-7	Clear Fog Rain	54-100	Perpendicular Parallel

[1] Investigated during Spring 1980 Experiment only.

The SLAR computer compensates for signal attenuation, aircraft speed and attitude, and annotates an advancing video display with information including date, time, position, speed, altitude, and range marks. Film records of the video displays can be made in-flight for post-experiment analysis of the SLAR image. All data in this report were gathered for post-experiment analysis.

RESULTS

Because target positions were known and all data were generated via post-experiment analysis of the SLAR imagery, results presented in this report represent an upper bound on present SLAR detection capabilities. Lateral range curves and sweep widths presented in this report should not be used to predict real-time, operational search performance.

Parameters that were found to have a significant influence on the detectability of SAR targets under the good to moderate conditions encountered during these experiments include:

Environment-Related	Controllable
Swell height	Target size and composition
Wind speed	Lateral range
Visibility	Altitude
Precipitation	Gain (SLAR/RIP only)
Relative humidity	

Lateral range curves were fitted to the experiment data collected at the optimum search altitude for each SLAR type/target type combination tested. Sweep width estimates based upon these lateral range curves are presented in Table 2.

CONCLUSIONS

The influence of parameters other than target type and lateral range was discernible only with small boats and raft targets. Detection of 41- to

Table 2. Sweep Width Estimates with 90-Percent Confidence Limits for SLAR Searches at Optimum Search Altitudes

SLAR Type	Target Type	Sweep Widths			Optimum Search Altitudes (ft)
		Lower 90 Percent Confidence Limit (nm)	Estimate (nm)	Upper 90 Percent Confidence Limit (nm)	
AOSS SLAR	41'-95' Coast Guard Vessels	22.0	23.6	24.9	None determined[1]
	13'-18' Fiberglass Boats without Equipment	6.5	8.0	9.6	2000
	16'-21' Fiberglass or Aluminum Boats with Equipment	8.6	10.4	12.3	2000
	4-6 Man Canopied Life Rafts without Radar Reflectors	5.2	6.3	7.6	2000-3000
	7-Man Non-Canopied Life Raft without Radar Reflector	5.2	6.3	7.6	2000-3000
SLAR/RIP	41'-95' Coast Guard Vessels	38.5	40.8	42.6	None determined[2]
	13'-18' Fiberglass Boats without Equipment	9.7	10.6	11.5	2000-3000
	16'-21' Fiberglass or Aluminum Boats with Equipment	15.7	16.9	18.2	2000-3000
	4-6 Man Canopied Life Rafts without Radar Reflectors	8.1	9.0	10.1	2000-3000
	7-Man Canopied Life Raft without Radar Reflector	10.3	12.0	13.9	2000-3000

[1]Data collected at altitudes from 1000 to 5000 feet.

[2]Data collected at altitudes from 1000 to 7500 feet.

95-foot metal-hulled Coast Guard boats was excellent under all conditions tested, and fell below 90+ percent only beyond ranges greater than about two-thirds of maximum sensor range. Consequently, other parameters demonstrated no significant influence on detection probability with these targets over the range of conditions encountered. Conclusions below refer to detection of small boats and life rafts:

1. Swell Height. Swell heights less than 1.5 feet generally yielded better detection performance than swell heights from 2.0 to 4.0 feet. This performance difference was only statistically significant, however, for AOSS SLAR searching for rafts.

2. Wind Speed. Wind speeds less than 10 knots resulted in better performance than wind speeds of 11 to 30 knots. However, this difference was only significant for SLAR/RIP searching for life rafts.

3. Visibility/Precipitation/Relative Humidity. These three parameters, which are related to atmospheric interference with microwave signal propagation, all demonstrated negative effects on detection performance with one or more SLAR type/target type combinations.

4. Target Size and Composition. This parameter, which relates to target radar cross-section, is by far the most influential in determining target detection performance. Small rubber rafts and fiberglass boats without engines were detected less frequently than engine-equipped 16- to 21-foot boats at all lateral ranges. Sweep widths given in Table 2 reflect this difference in detectability.

5. Search Altitude. Search altitudes of 2000- to 3000-feet were generally found to yield optimum small-target detection performance for both SLAR systems.

6. Gain (SLAR/RIP only). Tests indicated that higher gain settings than those typically used by SLAR/RIP operators at a given altitude may yield improved small-target detection performance.

RECOMMENDATIONS

1. Test large life rafts and life boats, such as those used by commercial air and ocean liners, in open-ocean search.

2. Test more severe environmental conditions and a greater range of search altitudes, especially with medium to large targets.

3. Design future tests of AN/APS-94D SLAR systems to focus on real-time open-ocean search scenarios rather than system performance tests.

4. Do not evaluate subjective parameters, such as image background, in future experiments.

5. Provide SLAR operators with extensive training in equipment operation and target recognition/classification.

6. In future radar image processors, provide target recognition, classification, and tracking algorithms.

7. Identify optimum gain setting/search altitude combinations in future SLAR/RIP tests.

Chapter 1
INTRODUCTION

1.1 SCOPE

This report presents empirical results of side-looking airborne radar (SLAR) detection experiments and provides an assessment of SLAR effectiveness as an aid to search and rescue (SAR) operations. These experiments were conducted by the United States Coast Guard Research and Development (R&D) Center in conjunction with visual detection and leeway drift experiments during fall 1978, winter and fall 1979, and spring 1980. Targets included small boats, life rafts, and 41- to 95-foot boats.

These Coast Guard SLAR systems were not specifically designed to detect small SAR targets, but rather for ice and/or oil spill surveillance. The superiority in resolution which SLAR enjoys over standard search radar makes an evaluation of its effectiveness as a sensor for SAR operations appropriate. No alternative detection method may be available in poor visibility, nighttime or limited-resource situations. The environmental conditions and other parameters that affect SLAR performance in detecting small targets are evaluated in this report to the extent that available data permit.

1.2 BACKGROUND

1.2.1 <u>Description of SLAR</u>

The SLAR systems tested incorporate an AN/APS-94C or D radar with an onboard computer system, video monitors, and photographic film or magnetic tape recorders. The radar uses long antennae mounted on the sides or below the tail of the aircraft. SLAR operates by microwave echo ranging similar to conventional radar; however, SLAR uses the forward motion of the aircraft rather than a rotating antenna to provide an advancing display. This technique, combined with the long antennae, allows for superior resolution.

The SLAR onboard computer system performs functions such as aircraft yaw corrections and range conversions. On the Airborne Oil Surveillance System (AOSS), enhanced signals are displayed in a rolling-map format on video monitors and photographic film which is automatically processed onboard. The rate of advance for both video and film is correlated to aircraft ground speed and is controlled by inputs from the aircraft's navigation system. Displayed with the SLAR image are range reference marks and Airborne Data Annotation System (ADAS) data blocks showing date, time, position, altitude, speed, heading, roll, pitch, and yaw. The SLAR/Radar Image Processor (RIP) system records the image in digital form on magnetic tape and records the ADAS information on a computer printout. A target cursor marks and calculates target position on the SLAR video display (in this event, the target location is included in the ADAS block). Appropriate information is transmitted directly from the inertial navigation system (INS) and cockpit instruments of the aircraft to the onboard computer.

Two Coast Guard HC-130 aircraft were configured for SLAR installation during the experiments, but each had a different antenna system. CG 1347, based at Elizabeth City, North Carolina, was the Airborne Oil Surveillance System (AOSS) aircraft having a SLAR system with split antennae mounted on the fuselage. The vertically polarized antenna is shown in Figure 1-1. CG 1351, based at Clearwater, Florida, was configured for SLAR or SLAR with RIP and had a single, tail-mounted antenna shown in Figure 1-2. The two SLAR systems had different signal strengths, antenna patterns, and polarization, resulting in potentially different system performance. The frequency of the radars was X-band and tunable between 9.10 and 9.40 GHz.

a. AOSS SLAR. The Coast Guard designed AOSS (Reference 1) as a multimission airborne ocean surveillance system to provide 24-hour, adverse weather surveillance for SAR, the enforcement of laws and treaties (ELT), and marine environmental protection (MEP). SLAR is

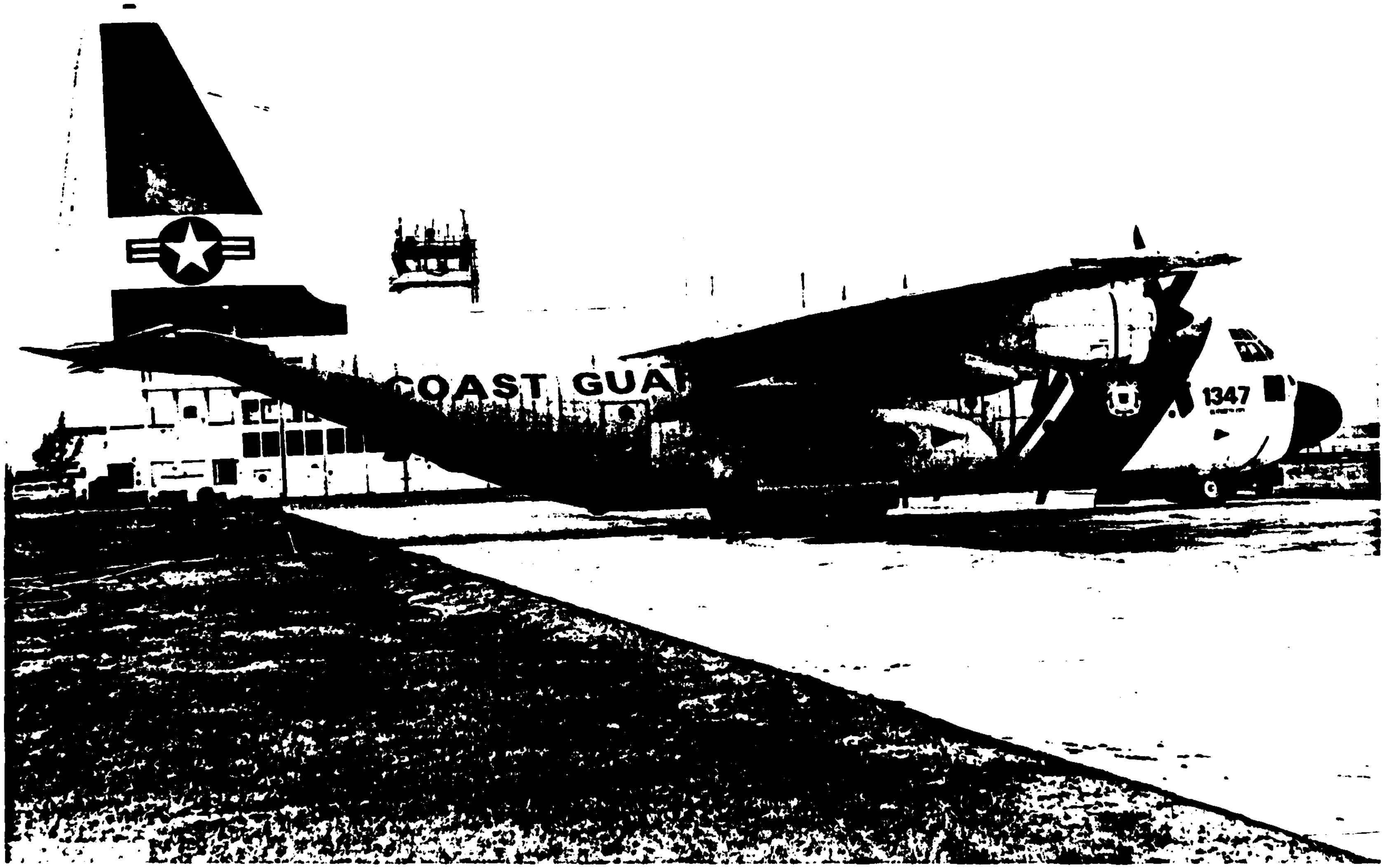

FIGURE 1-1.

AOSS AIRCRAFT — CG # 1347

FIGURE 1-2. SLAR/RIP HC-130B AIRCRAFT

(CG #1351)

NASA PHOTO

only one of several electronic sensors that comprise the total AOSS system. The AOSS unit uses two real-aperture radar (RAR) antennae: an 8-foot, vertically polarized antenna mounted on the right side of the aircraft and a 16-foot, horizontally polarized antenna mounted on the left side. Previous exercises (Reference 2) have shown that the horizontally polarized antenna provides better resolution of hard targets, such as ships and icebergs, while the vertically polarized antenna is better suited to oil-slick detection because it enhances surface-structure return from the sea.

The SLAR AN/APS-94D radar provides coverage from 45 degrees with the vertical to up above the horizon. Peak output power is 45 kilowatts with a pulse repetition rate of 750 pulses per second (alternating 64 pulses at a time to each antenna). Some signal strength is lost in the long, complicated wave guide. Beam widths are 0.45 degrees (left antenna) and 0.90 degrees (right antenna) in azimuth and 42 degrees (-3 to -45 degrees from horizontal) in elevation. The frequency is X-band and tunable between 9.10 and 9.40 GHz.

A real-time black-and-white or color video monitor or a 9.5-inch film record displays the SLAR image in rolling-map format. The effective surveillance capability is 27 nm (50 km) to either side of the aircraft. For higher resolution, the display swath-width can be halved to give real-time and post-experiment analysis coverage of 13.5 nm (25 km) to either side of the aircraft. This smaller display scale was used exclusively during the detection experiments of fall 1978 and winter 1979. During the Spring 1980 Experiment, the long-range display was also used.

b. SLAR/RIP. During the Fall 1979 and Spring 1980 Experiments, CG 1351 was outfitted with a SLAR/RIP system (Reference 3). Like the AOSS system, SLAR/RIP uses the AN/APS-94D (in 1979) and -94C (in 1980) radar but with a 16-foot, horizontally polarized antenna and a shorter, more simplified wave guide. Peak output power is 45 kilowatts with a pulse repetition rate of 750 pulses per second.

Beam width is 0.45 degrees in azimuth and 42 degrees (-3 to -45 degrees from horizontal) in elevation. The frequency is X-band and tunable between 9.10 and 9.40 GHz. This system can conduct surveillance as far as 55 nm (100 km) to either side of the aircraft. SLAR/RIP has three available mapping swaths: 13.5 nm (25 km), 27 nm (50 km), or 55 nm (100 km) to each side of the aircraft; the swaths can be offset in 5.5-nm (10-km) increments by the operator. Magnetic tape is the primary means of recording data with the SLAR/RIP system, but SLAR film recording is also available.

The radar is interfaced with a NASA-developed RIP. To enhance detection and attempt target recognition, the RIP has become a useful interactive system. The radar image is presented on a real-time, moving-window display on a pair of essentially standard color video monitors driven by a solid-state refresh memory. RIP provides geometric corrections to the image display (for drift angle, aircraft speed, and slant range), return signal amplitude calibrations (for antenna pattern, aircraft roll, transmitter power, and receiver gain), dynamic target threshold calculations, perceptive target description, automatic target position, and automatic target tracking. The entire SLAR/RIP hardware package is pallet-mounted as shown in Figure 1-3 for rapid installation and removal.

The SLAR/RIP system is owned and operated by the NASA-Lewis Research Facility, Cleveland, Ohio, and was on loan to the Coast Guard for these experiments. While future Coast Guard SLAR systems may not be of this type, it does represent a state-of-the-art capability.

Although the two SLAR systems tested are distinctly different, the operating ranges and navigational capabilities of the two aircraft are similar. Except for the Spring 1980 Experiment, it was not possible to conduct their performance tests simultaneously during these experiments to provide a direct comparison.

NASA
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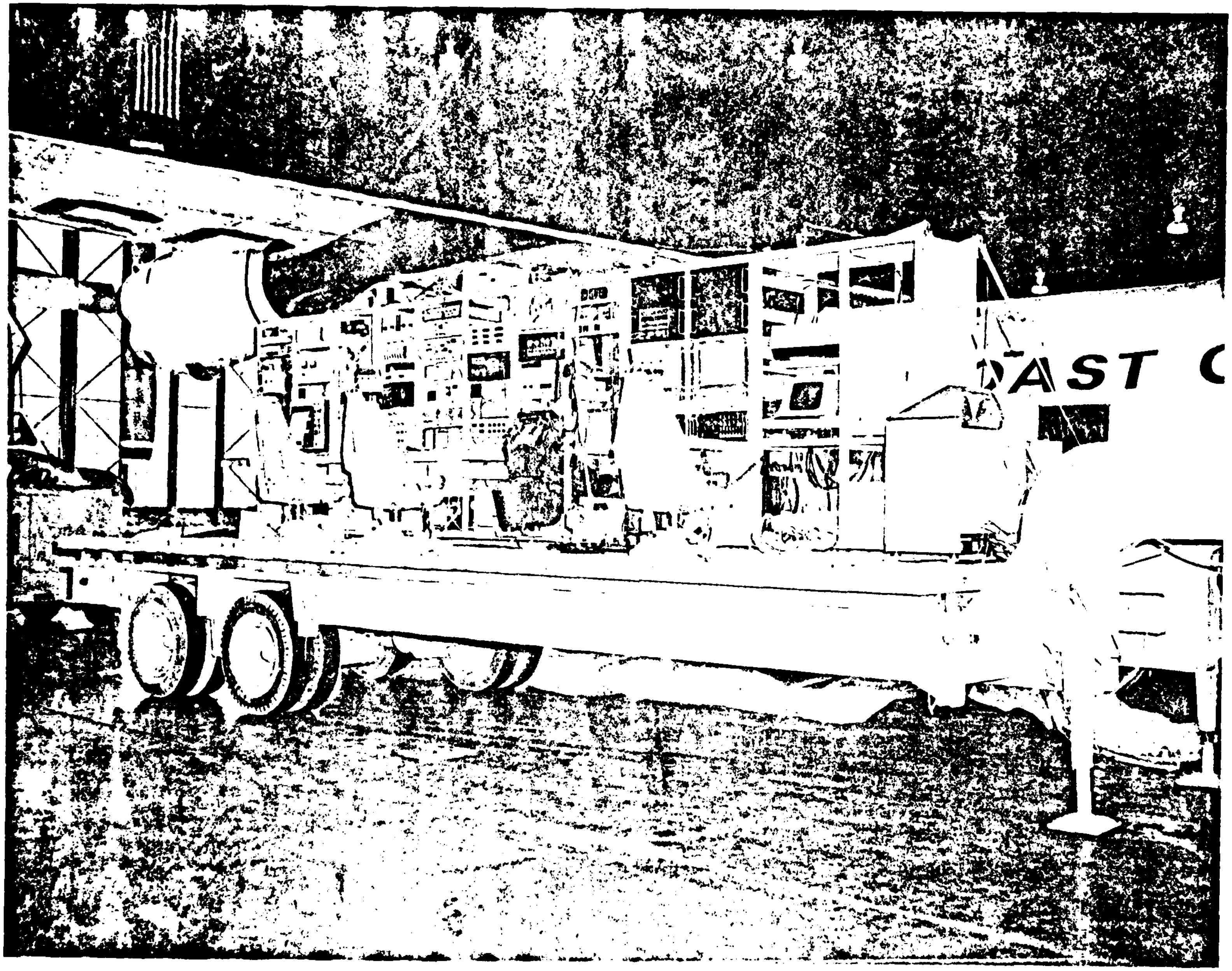


FIGURE 1-3. **SLAR/RIP SYSTEM ON ROLL-ON PALLETS**

1.2.2 Blind Zone, Shadowing Effect, and Resolution

Because of the angle through which the SLAR microwave signal is transmitted, a blind zone extends to each side of the flight path a distance roughly equal to the aircraft's altitude (see Figure 1-4). Although it is beneficial to fly at low altitudes to reduce the blind zone, low altitudes increase the amount of shadowing produced by taller objects and the amount of sea return near the boundary of the blind zone.

The geometry involved with the shadowing effect (Figure 1-5) yields an equation for calculating the length of the shadow zone that an obstructing object will create for a target of given size. The length, X, of the shadow zone created by an obstructing object is given by:

$$X = (h-t)G/(H-h)$$

where

h = obstructing object height,
t = target height,
G = obstructing object range from flight path, and
H = aircraft altitude.

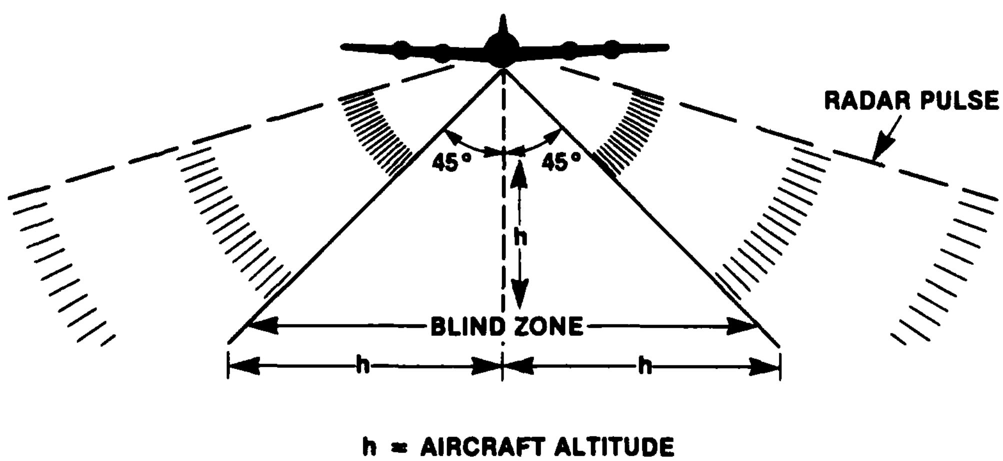


Figure 1-4. Blind Zone in SLAR Coverage

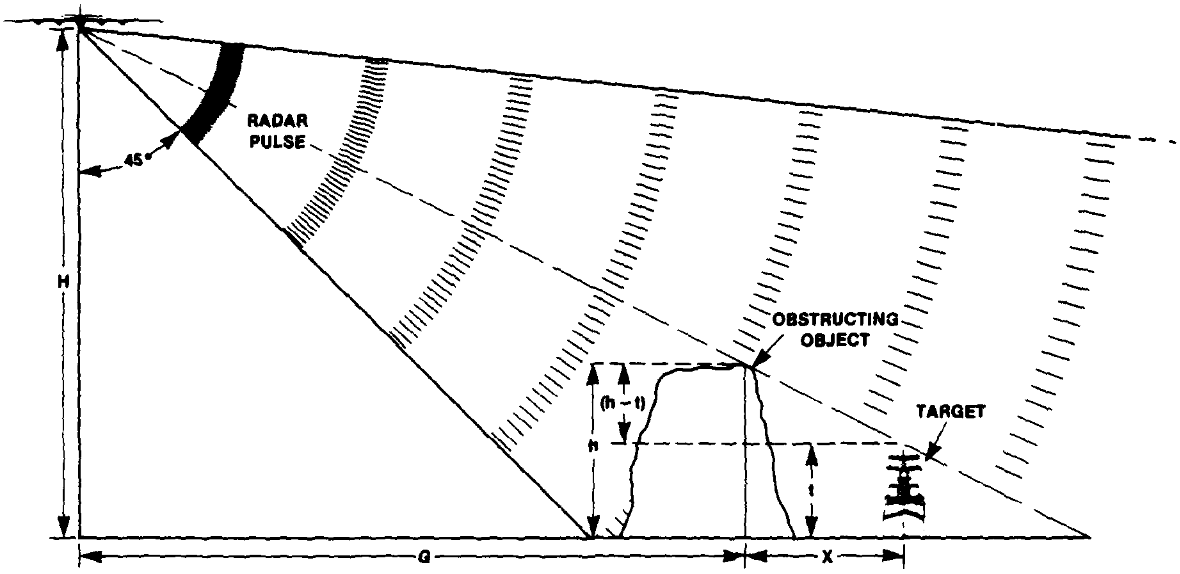


Figure 1-5. Geometry Involved with Shadowing Effect

For example, at an aircraft search altitude of 5000 feet, a 2-foot high boat in 4-foot seas is shadowed for 2.4 feet at a range of 1 nm and shadowed for 60 feet at a range of 25 nautical miles.

Resolution (detection and differentiation between individual targets provided one does not shadow the other) in the across-track direction is dependent on the microwave pulse length and therefore remains constant at 30 meters as range increases. Resolution in the along-track direction is dependent on beamwidth and therefore deteriorates at a rate of 9 meters per kilometer from an initial resolution of 9 meters at 1 kilometer. (References 1 and 3.)

1.2.3 SLAR Performance in Other Scenarios

In the past, SLAR systems have been used for iceberg identification, ice floe mapping, and oil spill detection.

One intended use of SLAR equipment in iceberg identification had been to produce ground truth data to compare with SEASAT-A (synthetic aperture radar) data (Reference 4). SLAR is well suited for this purpose because of its weather-penetrating capabilities as well as its near real-time display and output.

The SLAR/RIP system was used to map ice floes around Point Barrow, Alaska, in late summer of 1976 (Reference 5). Flying at an altitude of 11,000 feet and an average ground speed of 265 knots, the SLAR aircraft successfully mapped swaths of ocean up to 100 km wide in a variety of weather conditions. The high resolution of SLAR made possible identification of oil rigs, tugs, barges, islands, and ice in periods of varying visibility. When the Coast Guard ice breaker GLACIER was unable to deploy helicopters for visual ice observations, SLAR aircraft were able to provide the necessary ice floe maps. The capability of the SLAR/RIP system to distinguish between iceberg and ship targets has been evaluated (Reference 6). The goal of this program is to assist the International Ice Patrol in its surveillance of icebergs in the vicinity of the Grand Banks of Newfoundland.

The AOSS SLAR aircraft used for oil spill detection and mapping has detected spills out to 13 nm from the flight path. The vertically polarized antenna performed best for detecting oil spills. Since SLAR distinguishes oil's smoothing effect on the water, it was most effective at wind speeds greater than 5 knots. In a 7-month period from April through October 1977, the AOSS SLAR aircraft logged a total of 143 flight track hours, imaging an average of 5875 square nautical miles/hour resulting in a total of over 840,000 square nautical miles imaged (Reference 2). Most missions were flown at altitudes between 2500 and 5000 feet. During these operations, the horizontally polarized antenna performed better at detecting hard objects, such as icebergs, than did the vertically polarized antenna.

In all of these exercises, the SLAR displayed greater resolution capabilities than conventional radar systems; however, SLAR resolution does deteriorate as range increases, and its capability to detect small targets or discern small targets from large waves in a SAR operation is still to be determined. Effects of inclement weather on SLAR performance must be evaluated along with the development of appropriate measures of effectiveness for SLAR in SAR operations. SLAR possesses some useful and unique capabilities; whether these may be suited to SAR applications is the subject of this report.

1.3 MEASURES OF SEARCH PERFORMANCE

The primary performance measure currently used by SAR mission coordinators to plan searches is sweep width (W). Sweep width is a single number representation of a more complex lateral range/target detection probability relationship. Mathematically,

$$\text{Sweep Width (W)} = \int_{-\infty}^{+\infty} P(x)\, dx,$$

where

x = lateral range (see Figure 1-6) and
$P(x)$ = probability of detection at lateral range x.

Figure 1-7 shows a typical detection probability $P(x)$ versus lateral range curve for electronic sensors such as SLAR. Electronic sensors perform differently than the human eye or other optical sensors over lateral range in that, with strong targets, they obey a definite detection law function; that is, they operate with a fairly uniform $P(x)$ near unity out to their maximum

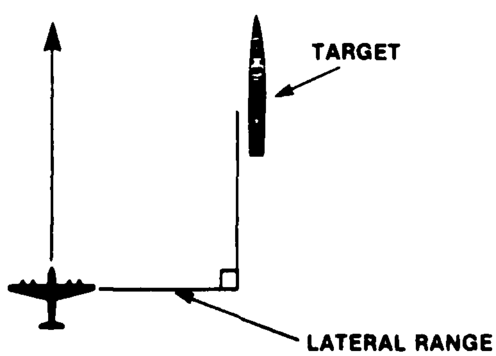
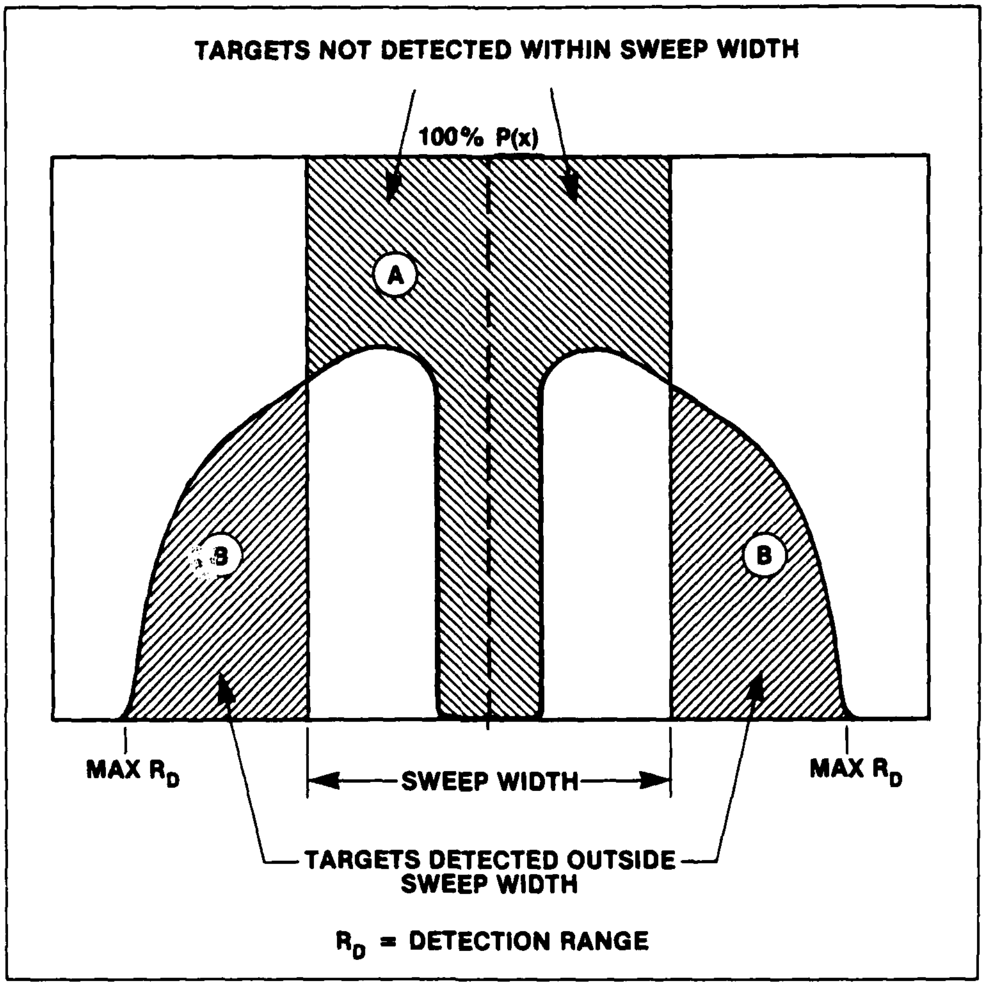


Figure 1-6. Definition of Lateral Range

A. GRAPHIC PRESENTATION OF SWEEP WIDTH



B. PICTORIAL PRESENTATION OF SWEEP WIDTH

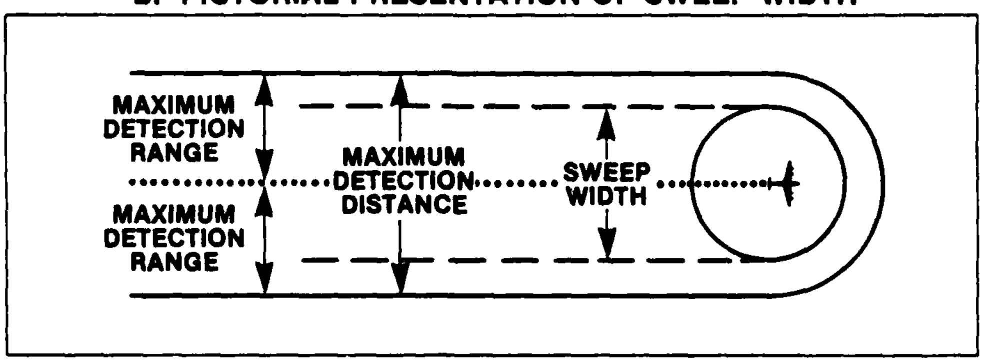


Figure 1-7. Graphic and Pictorial Presentation of Sweep Width

range, and detect no targets beyond that range. For targets that provide weak signal reflections near the threshold of a sensor's capability to detect and that might become subject to shadowing effects or masking due to sea return, this P(x) can drop well below unity with the shape of the lateral range curve resembling that of Koopman's "Class B" radar target (Reference 7). The "hole" in the P(x) versus lateral range curve near the searcher's track is due to the antenna pattern. A portion of the search area directly underneath the SLAR transmitter is not illuminated because the microwave signal is aimed to the side, not vertically downward. The size of this area depends on altitude and the angle through which the signal is transmitted. In the case of SLAR, the width of this zone is approximately equal to twice the aircraft's altitude. In addition, there is a region of coverage near the aircraft that returns a very noisy image under all but the most favorable conditions due to excessive signal strength return. The RIP processor compensates for this effect better than the AOSS system.

Conceptually, sweep width is the numerical range value obtained by choosing the distance from any given search track that will yield a number of detections beyond the sweep width range equal to the number of targets missed at ranges less than or equal to the sweep width. Figure 1-7 graphically presents this concept of sweep width. The number of targets missed inside the sweep width distance is indicated by the shaded area near the top middle of the rectangle (area A), while the number of targets sighted beyond the sweep width distance is indicated by the shaded areas at each end of the rectangle (area B). Referring only to the shaded areas, when the number of targets missed equals the number of targets sighted (area A = area B), sweep width is defined. A detailed mathematical development of sweep width can be found in Search and Screening (Reference 7).

For visual searches, the SAR Manual (Reference 8) uses sweep width to calculate a quantity known as coverage factor (C), which in turn is used to predict cumulative probability of detection (POD) for a given search. This model is based upon the assumption that the instantaneous glimpse probability of detection is inversely proportional to the cube of the range to the target. It should be noted that for SLAR this assumption is not valid. Thus, the SAR

Manual procedure for visual searches may not yield an accurate POD prediction for SLAR search. Additional discussion on this topic is provided in Chapter 4.

1.4 PARAMETERS THAT MAY INFLUENCE SLAR SEARCH PERFORMANCE

Although SLAR has obvious advantages over visual search in conditions of poor or zero visibility as well as a very sophisticated position marking and recording system, its performance is susceptible to certain controllable parameters as well as some environmental conditions. For example, high sea state (which is related to high wind speed) can increase the amount of backscatter received by the SLAR system, creating a "noisy" background in the image it produces and making it difficult to identify targets of small or moderate size. The microwave signal also may be affected by the moisture content of the air through which it must propagate. Search altitude may affect the area size that will be covered by the SLAR signal as well as the width of the blind zone underneath the aircraft's flight path. Gain adjustment, antenna polarization, and target/size composition are also potentially significant parameters in SLAR detection performance.

Variables assessed in this report for their effects on SLAR detection performance are summarized below:

Environment-Related Variables	Controllable Variables
Wind speed	Target size and composition
Swell height	Antenna polarization
Relative humidity	Gain (SLAR/RIP only)
Precipitation	Altitude
Image background	Lateral range
Visibility	Relative wave direction

The environment-related variables primarily affect return signal strength and image quality, while controllable variables affect the amount of area searched, type and strength of signal transmitted, and target resolution.

1.5 SUMMARY

While the AOSS SLAR and SLAR/RIP systems being evaluated in this report are designed primarily for ELT, oil spill surveillance, ice floe mapping, and iceberg tracking, they have a potential use as SAR sensors. The most important application of SLAR to SAR operations would be under conditions that render other search techniques ineffective or impossible.

SLAR detection performance can be influenced potentially by a number of parameters, some controllable (at least to some extent) and others more environment-related. An investigation of the influence of these parameters on SLAR detection of small and moderate-size targets was made during a series of three experiments which took place from 1978 through 1979 (References 9 and 10). This report presents an analysis of the results of those experiments and a fourth experiment conducted in the Spring of 1980.

Chapter 2
EXPERIMENT DESIGN, CONDUCT, AND ANALYSIS APPROACH

2.1 GENERAL DESCRIPTION

The data used for this report were collected during four experiments during fall 1978, winter and fall 1979, and spring 1980. To maximize resources, SLAR aircraft were originally planned for 30 of the 72 visual search days scheduled for these exercises. However, due to operational commitments, equipment failures, and adverse weather, only 8 days of AOSS SLAR and 9 days of SLAR/RIP search were conducted. Table 2-1 provides the salient characteristics of the four experiments. The SLAR systems were not available for testing during the Spring 1979, Fall 1980, and Winter 1981 Visual Detection Experiments.

a. Fall 1978 AOSS SLAR Searches. The AOSS SLAR aircraft conducted SLAR searches on 20 and 21 September in conjunction with a visual detection experiment in Block Island Sound. Targets were small boats and the monitor vessel, which was the On-Scene Commander's (OSC) 42-foot Coast Guard utility boat (UTB).

b. Winter 1979 AOSS SLAR Searches. The AOSS SLAR aircraft conducted simultaneous SLAR and visual searches on 26, 27, and 31 January in conjunction with a leeway drift experiment in the open ocean off the Florida coast. Targets were drifting life rafts.

c. Fall 1979 SLAR/RIP Searches. The SLAR/RIP aircraft conducted SLAR searches in conjunction with a Block Island Sound visual detection experiment during September and October 1979. Targets were small boats, life rafts, 41- and 44-foot boats including the OSC vessel, and 82- and 95-foot cutters.

Table 2-1. Description of Individual Experiments

Experiment	Inclusive Dates	Location	Type of SLAR Tested	Target Types	Detection Opportunities
Visual/SLAR Detection Experiment Fall 1978	11 September - 6 October	Block Island Sound	AOSS SLAR	Small boats (outboard or inboard/outboard) 42' boat	93 30
Leeway Drift Experiment Winter 1979	26-31 January	Atlantic Ocean off Florida Coast	AOSS SLAR	Life rafts	74
Visual/SLAR Detection Experiment Fall 1979	17 September - 25 October	Block Island Sound	SLAR/RIP	Small boats (outboard) Life rafts 41' and 44' boats and 82' and 95' cutters	160 114 212
Visual/SLAR Detection Experiment Spring 1980	14 April - 22 May	Block Island Sound	SLAR/RIP and AOSS SLAR	Small boats (outboard) Life rafts 41', 42' and 44' boats and 82' and 95' cutters	1008 685 439

d. Spring 1980. The SLAR/RIP and AOSS systems were both tested in conjunction with a Block Island Sound detection experiment during April and May of 1980. Targets were the same as those used in the Fall 1979 Experiment plus a 42-foot Coast Guard UTB.

The search area for each SLAR experiment was partially controlled by the size and geographical features of the visual search area during the 1978 and 1979 experiments. Area size assigned to SLAR aircraft varied from 500 to 1500 square nautical miles as shown in Figure 2-1. [Figure 2-1 also shows the Microwave Tracking System (MTS) configuration used for target location.] The Block Island Sound SLAR search area varied from 18 X 28 nm centered at 41°04.0'N, 71°49'W to 24 X 42 nm centered at 41°01.4'N, 71°44'W. The open-ocean searches were in a 30 X 50 nm area centered near 29°00'N, 77°00'W (exact center point coordinates varied daily as targets drifted).

During the Spring 1980 Experiment, certain search days were reserved solely for SLAR and surface vessel radar (SVR) searches. Search patterns were designed around a 3 X 3 target array to aid in verifying detections during post-exercise analysis and provide for more efficient data collection.

2.2 SEARCH PATTERNS

Four search patterns were used to collect SLAR data. Originally, one experiment objective had been to collect real-time SLAR detection data as well as recorded data for post-experiment analysis. For this reason, parallel (PS) or creeping line (CS) search tracks (Reference 8) were often used as they would be in an actual SAR mission, especially where visual search might be employed simultaneously. When no real-time data collection was intended, a box pattern search outside the perimeter of the area or a series of "fly-bys" past the targets was conducted.

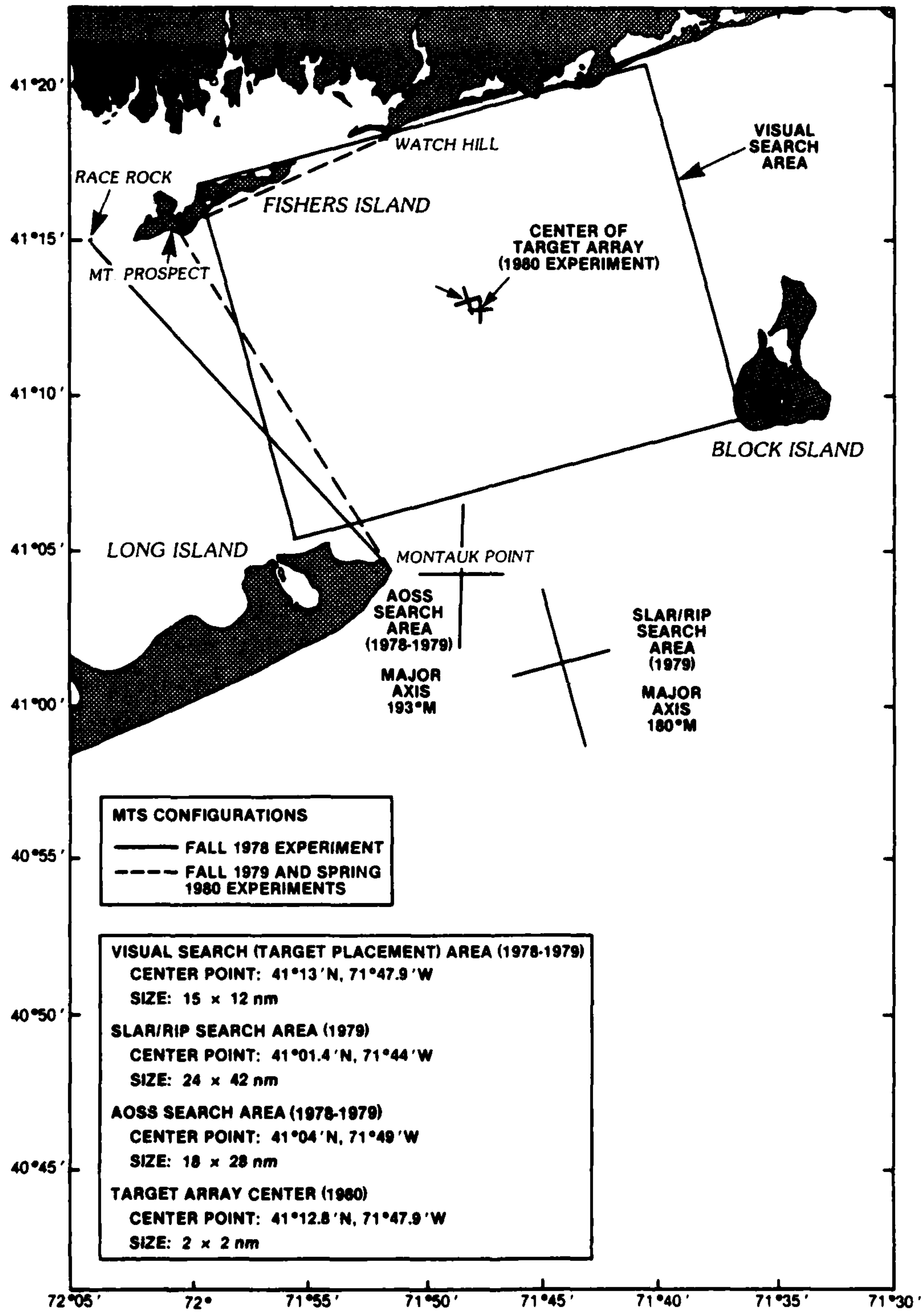
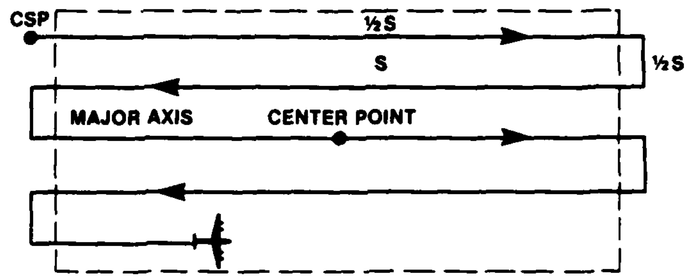


Figure 2-1. Search Areas in Block Island Sound and MTS Configuration

2.2.1 Parallel Search

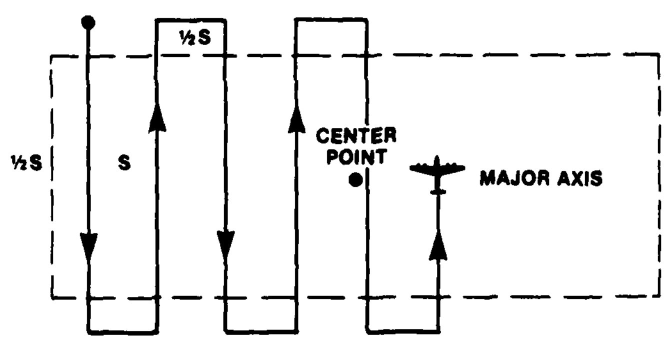
Search legs were parallel to the direction of the major axis of the search area and were separated by a specified track spacing. Commence search points (CSP) and cross track search legs were one-half the track spacing (S) outside the perimeter of the search area to allow for uniform SLAR coverage (aircraft in level flight).



Sketch 2-1. Parallel Search Pattern

2.2.2 Creeping Line Search

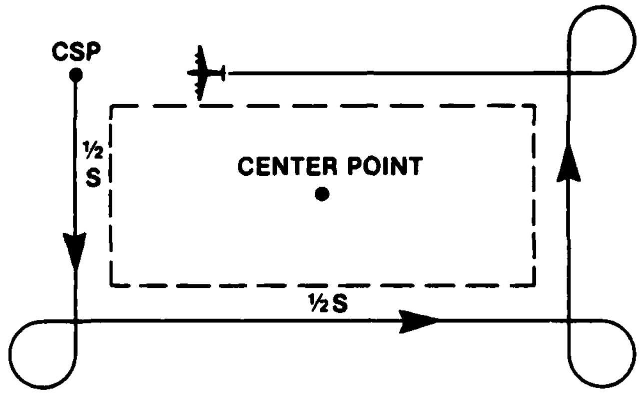
Search legs were perpendicular to the direction of the major axis of the search area and were separated by a specified track spacing. Start points and cross track search legs were one-half the track spacing outside the perimeter of the search area.



Sketch 2-2. Creeping Line Search Pattern

2.2.3 Box Pattern

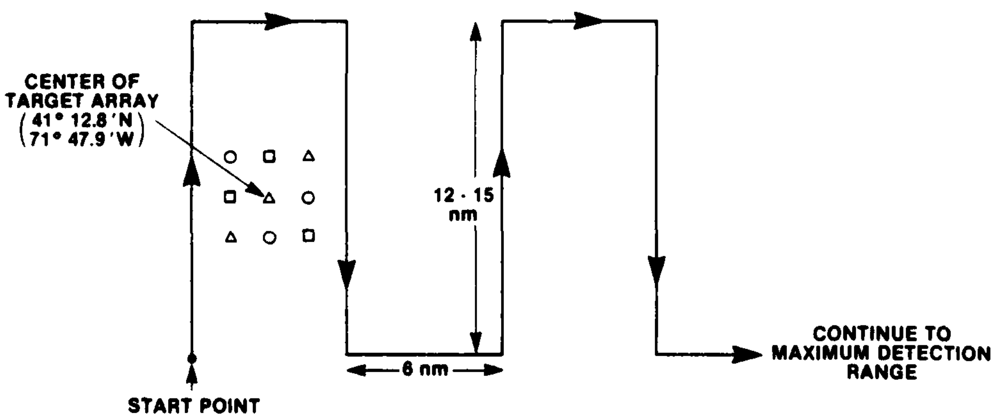
Search legs were parallel to the boundaries of the visual search area and one-half the track spacing outside. Turns were made at a standard rate away from the search area.



Sketch 2-3. Box Pattern

2.2.4 Fly-by Pattern

During the Winter 1979 and Spring 1980 Experiments, a series of track-line searches (TS) or fly-bys past a target array was made instead of the PS searches. This method allowed for more efficient data collection and more accurate experiment reconstruction.



Sketch 2-4. Fly-by Pattern

2.3 TARGETS AND TARGET PLACEMENT

Actual search targets are typically life rafts, small- to medium-sized boats (less than 40 feet) or persons in the water (PIWs) for SAR, and medium to large boats (less than 100 feet) or ships for ELT missions. The detectability of these targets by radar is dependent upon their construction materials as well as their size. To determine the detection capability bounds for SLAR, small non-reflective targets (life rafts and small fiberglass boats) and large highly reflective targets (82- or 95-foot Coast Guard cutters) were used to represent the extremes of target detectability.

2.3.1 Target Types

Individual targets varied from experiment to experiment, but can generally be classified into three categories:

a. Small Boats. The average length was 16 feet, with the targets varying from 13 to 21 feet. All were of fiberglass or aluminum construction, but the amount of equipment varied from none to a small amount of hardware to an outboard or inboard/outboard motor with full equipment.

b. Life Rafts. Four- to seven-man life rafts were equipped with a 4-foot high canopy or had only approximately 2 feet of freeboard. During the Fall 1979 and Spring 1980 Experiments, small corner-type radar reflectors were installed on some of the canopied rafts. All rafts were of rubber or nylon/rubber construction.

c. Larger Targets. Medium and large boats constructed of wood, fiberglass, aluminum, or steel represent a large segment of recreational and commercial vessels and are the most detectable targets subject to SAR and ELT radar surveillance. Medium and large targets used in this experiment were 41/42/44-foot Coast Guard boats and 82/95-foot cutters. These vessels served as SLAR targets while acting as search and rescue units (SRUs) for collection of visual or radar detection data. Since these vessels were constructed primarily of metal and were large enough not to be subject to shadowing effects from small ocean swells, it was expected that they would be easily detected by both SLAR systems.

Table 2-2 summarizes the characteristics of all target types used during these experiments.

Table 2-2. Description of SLAR Targets

Target	Typical Size L x H x W (ft)	Construction Material	Reflective Equipment
Life raft	12 X 2 X 5.5	Rubber	None
Life raft with canopy	6.2 X 3.8 X 6.2	Rubber, nylon	Radar reflector (selected cases)
Outboard	15 X 1.7 X 5.5	Fiberglass	Cleats, seat posts
Inboard/outboard or outboard with engine	19 X 2 X 6	Fiberglass, aluminum	Engine, gas tank, etc.
CG boat (UTB, MLB)	41/42/44 X 20 X 10	Aluminum, steel	Fully equipped
CG cutter (WPB)	82/95 X 40 X 15	Aluminum, steel	Fully equipped

2.3.2 Target Placement

During the 1978 and 1979 Experiments, track spacing was assigned to provide maximum coverage of the visual search area and SLAR swath overlap so that targets of opportunity would appear on successive tracks. When appropriate, changes in track spacing were made by the OSC. SLAR search track spacing of 3 to 6 nm was used for all targets and environmental conditions. Small targets (either boats or life rafts) were anchored at predetermined locations and their positions marked by the OSC vessel using the MTS.

During the 1980 Experiment, a search pattern that started near the 3 X 3 target array and crept outward in 6-nm increments was used (see Sketch 2-4). The targets in the array were placed in a 2 X 2-nm area with a 1-nm separation from each other in all directions.

For the Block Island Sound experiments, an MTS was used to accurately mark the initial location of small anchored targets. In addition, at the end of each search day, target fixes were again taken to ensure that the targets had not drifted. The above procedure was accomplished by taking fixes on the OSC vessel (which was equipped with an MTS transponder) as it set and picked up a target.

Larger targets were all equipped with MTS transponders and were tracked constantly by the system. Fixes on these targets were recorded at 1- to 5-minute intervals and are estimated to be accurate to within 0.1 nautical miles. A more detailed description of the MTS function can be found in Reference 11. Figure 2-1 shows the location of MTS baselines and transmitting stations used in Block Island Sound.

During the Leeway Drift Experiment off the Florida coast, MTS direct-range readings coupled with visual bearings from CGC EVERGREEN (the OSC vessel) yielded accurate target position fixes relative to EVERGREEN every 15 minutes. Since EVERGREEN was always clearly visible on the SLAR film recordings, target identification was possible. The absence of miscellaneous contacts in the open ocean also made target identification easier for this experiment.

2.4 RECONSTRUCTION

The reconstruction methods used to determine target detections and misses differed for the four SLAR experiments because of differences between the AOSS SLAR and SLAR/RIP systems, radar contact congestion in the search area, or target positioning and identification methods. The 9.5-inch SLAR film was the primary medium used to reconstruct AOSS searches because it provided better resolution than the videotape. Computer-generated digital video imagery, stored on magnetic tape, was used to reconstruct the SLAR/RIP searches. Examples of both types of imagery are included as Appendix B of this report. The reconstruction of each experiment is discussed in the following sections.

In all four experiments, the aircraft's search track was recorded by an inertial navigation system (INS). INS error was continuously checked in Block Island Sound by comparing the known latitude and longitude of geographical points of reference with those recorded on the SLAR display.

2.4.1 Fall 1978 AOSS SLAR Searches

During the Fall 1978 Experiment in Block Island Sound, SLAR data were gathered on small boats and the monitor vessel (42-foot UTB) using the AOSS HC-130 aircraft (CG 1347) from Coast Guard Air Station Elizabeth City. Detection and misses were determined as follows:

a. Obtain number of detection opportunities.

   (1) Determine the locations of the targets in the search area using data provided by the MTS.

   (2) Determine track of aircraft by reviewing videotapes.

   (3) Extract INS positions and corresponding times from videotapes.

   (4) Plot locations and flight tracks to determine number of detection opportunities.

b. Determine detections and misses.

(1) Review SLAR film, which is annotated with information including time and aircraft position, to locate geographical points of reference to determine INS errors.

NOTE: The SLAR film was analyzed rather than the videotapes because the videotape could not be stopped to observe scenes. The SLAR film also has better resolution.

(2) Apply INS errors to determine corrected target locations on the film.

(3) Examine each corrected target location and surrounding area to determine if a detection or miss occurred.

2.4.2 Winter 1979 AOSS SLAR Searches

During the Winter 1979 Experiment, the AOSS HC-130 aircraft was again used to gather SLAR data. Targets were life rafts without radar reflectors drifting in the open ocean about 300 nm off the Florida Coast. Detections and misses were determined as follows:

a. Obtain number of detection opportunities.

(1) Reconstruct the flight tracks using data from the onboard line printer which recorded time and aircraft position every 30 seconds.

(2) Determine life raft locations in relation to the OSC monitor vessel (CGC EVERGREEN) which was in the vicinity of the drifting life rafts.

(3) Plot target locations and flight tracks to determine number of detection opportunities.

b. Determine detections and misses.

(1) Locate monitor vessel on SLAR film.

NOTE: INS errors could not be determined due to the absence of fixed geographical points of reference. CGC EVERGREEN became the reference point for determining the target area instead.

(2) Search the appropriate areas around the monitor vessel to determine if a detection or miss occurred.

2.4.3 Fall 1979 SLAR/RIP Searches

During the Fall 1979 Experiment in Block Island Sound, SLAR data were gathered by the SLAR/RIP HC-130 aircraft (CG 1351) from Coast Guard Air Station Clearwater. Data were collected on detection of life rafts with and without radar reflectors, small fiberglass boats, 41-foot Coast Guard UTBs, 44-foot Coast Guard motor lifeboats (MLBs), and 82-foot and 95-foot Coast Guard cutters (WPBs). The SLAR/RIP equipment was operated by personnel from the NASA-Lewis Research Facility in Cleveland, Ohio. The SLAR/RIP data were stored on magnetic tape and post-experiment analysis was conducted using NASA computer facilities at their Image Processor Data Reduction Center. Detections and misses were determined as follows:

a. Determine number of detection opportunities.

(1) Determine target locations (i.e., number of detection opportunities) outside the blind zone using data provided by the MTS.

(2) Review computer tapes. (Flight track reconstruction was unnecessary since the computer software allowed one to search beyond the blind zone anywhere along the flight track while reviewing the SLAR tape.)

b. Determine detections and misses.

(1) Compute INS errors from geographical points and apply to target locations.

(2) Input corrected target locations (latitude and longitude) to the computer.

(3) Examine the vicinity of corrected target positions for SLAR contacts. It should be noted that some personal judgment was required in the determination of small target detections. In the case of larger targets, there was seldom any question as to the validity of a contact. In instances where extraneous contacts of similar reflectivity occurred near a larger target, detections could be verified by defining that target location/track more precisely on the viewing screen.

2.4.4 Spring 1980 Experiment

During the Spring 1980 Experiment in Block Island Sound, SLAR data were gathered by the SLAR/RIP aircraft and the AOSS aircraft. Data were collected on detection of life rafts without radar reflectors, small fiberglass boats, 41- and 42-foot Coast Guard UTBs, 44-foot Coast Guard MLBs, and 82- and 95-foot Coast Guard WPBs. The targets were placed in a 3 X 3 array, except for the Coast Guard boats and cutters. This target placement facilitated data reconstruction and identification. Detections and misses were determined as follows:

a. AOSS: determine number of detection opportunities.

(1) Determine center of target array using data provided by the MTS and the flight track records.

(2) Determine other array target locations, and the OSC vessel, Coast Guard boat and cutter locations relative to the array center.

(3) Plot target locations and flight tracks to determine number of detection opportunities.

b. AOSS: determine detections and misses.

(1) Review SLAR film to locate target array.

(2) Examine each array target location and target vessel location on the film to determine if a detection or miss occurred. The target locations were referenced to either the array center, the aircraft, or a point of land.

c. SLAR/RIP: determine number of detection opportunities.

(1) Determine target locations using data provided by the MTS.

(2) Review computer tapes.

d. SLAR/RIP: determine detections and misses.

(1) Compute INS errors from geographic points and apply to target locations.

(2) Input corrected target locations (latitude and longitude) to the computers. Locate target array center.

(3) Examine the vicinity of corrected target positions for SLAR contacts. In this case, unlike the fall 1979 data, since a target array was used, little personal judgment was needed. There was seldom any question as to the validity of a contact.

2.5 DATA-COLLECTION TECHNIQUES AND DATA ACCURACY

Although the data were analyzed after the flights, an attempt was made to review the SLAR films and tapes as if they represented a real-time situation. Real-time analysis of the data was felt to be impractical due to either the extraneous target concentration in the case of Block Island Sound or the fact that the number of targets and their locations were known by the searchers. In an operational search mode, SLAR probably would not be used in a high target density area since visual identification of each possible SLAR target would be very time consuming and inefficient, and the search unit would not know the location of the target.

To distinguish a detection from a miss, the following criteria were used in post-experiment analysis.

a. A detection occurred when:

   (1) A target of expected radar image intensity appeared in the corrected target position.

b. A miss occurred when:

   (1) A potential target location was masked by background noise of intensity equal to or greater than the target.

   (2) The area of corrected target position was devoid of contacts.

c. All other cases (i.e., doubt of target position, uncertainty as to which target was subject) were eliminated from the data base.

Because of the uncertainty of target location or identification, much data was lost (i.e., 30 percent of life raft and small boat detection opportunities during the Fall 1979 Experiment); however, this problem was remedied to a large extent by setting the targets in a small recognizable pattern during the Spring 1980 Experiment. Knowing where to look for the targets on the SLAR imagery and having a recognizable pattern to search for greatly reduced the chances of counting miscellaneous contacts as detections and facilitated verification of valid contacts. The 1980 data comprise 76 percent of the total SLAR performance data base.

2.6 EXPERIMENT DESIGN CONSIDERATIONS

In the first three experiments, the collection of SLAR data was a secondary objective to the acquisition of visual detection or drift data. The primary objective for SLAR data collection was to gather enough information to identify broad limits within which SLAR can operate as a useful SAR sensor. These experiments were designed with this objective in mind rather than with the intent to compile a comprehensive data base upon which exhaustive statistical analysis could be conducted.

Because the original intention was to collect both real-time and post-flight analysis detection data, standard search patterns were flown during the 1978 and 1979 Experiments and crews were instructed to operate the SLAR equipment as they saw fit. While this approach did not permit all the independent variables to be controlled systematically, it did facilitate an evaluation of SLAR capability to detect the targets used over the range of environmental parameters that were encountered. Analysis of the 1978 and 1979 SLAR data (Reference 9) indicated that the SLAR system's capability to detect SAR targets should be evaluated independently of the operator's ability to spot and classify targets in real time.

The 1980 SLAR experiment, therefore, was designed to collect data solely for post-exercise analysis. Controllable parameters, especially range, were varied more systematically than in previous experiments. Randomly placed detection opportunities were eliminated in favor of a well-defined target array and a search pattern that increased range in even increments out to the maximum detection range. In the case of SLAR/RIP, gain settings were varied at given altitudes to determine the influence of gain on detection performance. Two or three gain settings were tested around the value deemed best by the SLAR operator for prevailing conditions. With both SLAR systems, search patterns were flown both parallel and perpendicular to the ocean wave crests to test the influence of wave/beam relative direction on detection performance. The potential influence of this parameter could not be fully assessed during the experiment, however, due to the low sea-state conditions prevailing at the time (see Figure 2-3 in Section 2.8.4).

2.7 DESCRIPTION OF EXPERIMENT CONDITIONS

2.7.1 Detection Opportunities

The four SLAR experiments yielded a total of 1216 detection opportunities for the AOSS SLAR system and 1599 detection opportunities for the SLAR/RIP system. Target types fell into three general categories as described in Section 2.3.1, but specifics varied from one experiment to another. Table 2-3 summarizes SRU resource commitments during the four experiments and the total number of detection opportunities that occurred for each specific target type.

2.7.2 Range of Parameters

Environmental parameters varied somewhat from one experiment to another and some controllable parameters, such as altitude and gain, were varied over a different range of values for different target types. Table 2-4 summarizes the range of parameter values investigated in each data base. In some data bases, pairs of variables were found to be directly related; e.g., wind speed and swell height; SLAR/RIP operators tended to increase gain settings at higher altitudes during the Fall 1979 Experiment.

Table 2-3. Summary of SRU Resources

SLAR Type	Target Type	Total Search Time (hr)	Detection Opportunities
AOSS	Small boats	15.6	549
	Life rafts	18.3	424
	41'-95' boats	15.6	243
SLAR/RIP	Small boats	26.4	712
	Life rafts	23.0	449
	41'-95' boats	29.6	438

NOTES:
1. Search time is defined as the cumulative number of hours each aircraft spent searching only during the SLAR experiments.
2. Mission times (hours spent equipping for the SLAR experiments, hours spent on-scene, and hours spent transitting to and from the test area except when engaged in other operational missions) are for the AOSS Experiments - Fall 1978, 38.5 hours; Winter 1979, 58.0 hours; Spring 1980, 62.0 hours; and for the SLAR/RIP Experiments -- Fall 1979, 171.7 hours; Spring 1980, 98.0 hours.

Two parameters of interest, SLAR/RIP gain setting and SLAR beam direction relative to wave crest orientation, were controlled systematically for evaluation only during the Spring 1980 Experiment.

Table 2-4. Range of Parameters Investigated During SLAR Experiments

SLAR Type	Target Type	Lateral Range (nm)	Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization	Image Background	Gain[1]	Precipi-tation	Relative Humidity (%)	Wave Direction[1] (relative to beam)
AOSS SLAR	Life rafts	0-27	500-5500	1-15	3-30	0.5-3	Vertical and horizontal	Clear/light Scattered/dark	N/A	Clear Fog Rain	59-100	Perpendicular Parallel
	Small boats	0-27	1000-5500	1-15	3-17	0.5-4	Vertical and horizontal	Clear/light Scattered/dark	N/A	Clear Rain	55-100	Perpendicular Parallel
	41'-95' Coast Guard vessels	0-27	1000-5000	1-15	3-12	0.5-4	Vertical and horizontal	Clear/light Scattered/dark	N/A	None	55-100	Perpendicular Parallel
SLAR/RIP	Life rafts	0-45	1000-7500	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	1-7	None	54-94	Perpendicular Parallel
	Small boats	0-45	2000-5000	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	2-7	Clear Fog Rain	59-100	Perpendicular Parallel
	41'-95' Coast Guard vessels	0-45	1000-7500	1.5-15	4-17	0-3	Horizontal	Clear/light Scattered/dark	1-7	Clear Fog Rain	54-100	Perpendicular Parallel

[1] Investigated during Spring 1980 Experiment only.

2.8 ANALYSIS APPROACH

2.8.1 Introduction

Simple analytical techniques were generally used to examine the SLAR experiment data. These techniques consisted primarily of binning and/or plotting the empirical data to compare SLAR detection performance under sets of conditions that might demonstrate the influence of certain parameters. Chi-square tests were used to identify parameters that had a significant influence on SLAR detection performance. A sophisticated binary logistic regression analysis routine (LOGODDS) was used to fit lateral range curves to the empirical data so that search performance could be quantified for each sensor/target type combination tested.

2.8.2 Raw Data

Raw data were compiled during the reconstruction process as described in Section 2.4. Raw data sheets were completed for each SLAR type/target type combination separately. Information recorded on these sheets included the time at which each opportunity for detection occurred, a detection/miss indication, and the following parameters of potential interest:

a. Target type designator
b. Lateral range (nm)
c. Altitude (ft)
d. Visibility (nm)
e. Wind speed (knots)
f. Swell height (ft)
g. Antenna polarization (vertical or horizontal)
h. Image background (clear or dark)
i. Precipitation (yes or no)
j. Relative humidity (hundredths)

k. Wave direction (Spring 1980 Experiement only)

l. Gain setting (Spring 1980 Experiment SLAR/RIP only)

Computer data files were created using these raw data sheets and are included as Appendix A.

2.8.3 Aggregation of Data

Because of inherent differences between the two SLAR systems and among the various target types used in the experiments, aggregation of data was limited to similar SLAR type/target type combinations.

2.8.4 Analysis of Empirical Data

As expected, both SLAR systems achieved excellent results in detection of 41- to 95-foot aluminum- and steel-hulled Coast Guard vessels. This performance allowed conclusions about SLAR detection of these targets over the range of environmental conditions encountered to be drawn with a minimum of analytical effort. The ratios of detections to opportunities were plotted in 3-nm range bins for each sensor to identify system detection performance and the ranges, if any, at which performance began to degrade. Since nearly all large-target opportunities were detected, investigation into the influence of parameters, other than lateral range, on their detectability was not necessary or possible over the range of values encountered in this data base.

For each of the four small-target data bases, scatter diagrams similar to Figure 2-2 were plotted to identify the range of parameters present in the data. From these, binning schemes were devised to divide the data into physically meaningful levels of each parameter (e.g., wind speeds that would disturb the sea surface noticeably versus those that would not) while providing large enough sample sizes to yield statistically meaningful results. Chi-square tests for comparing two proportions when the sample sizes were large and unequal (Reference 12) were applied to the detection/opportunity

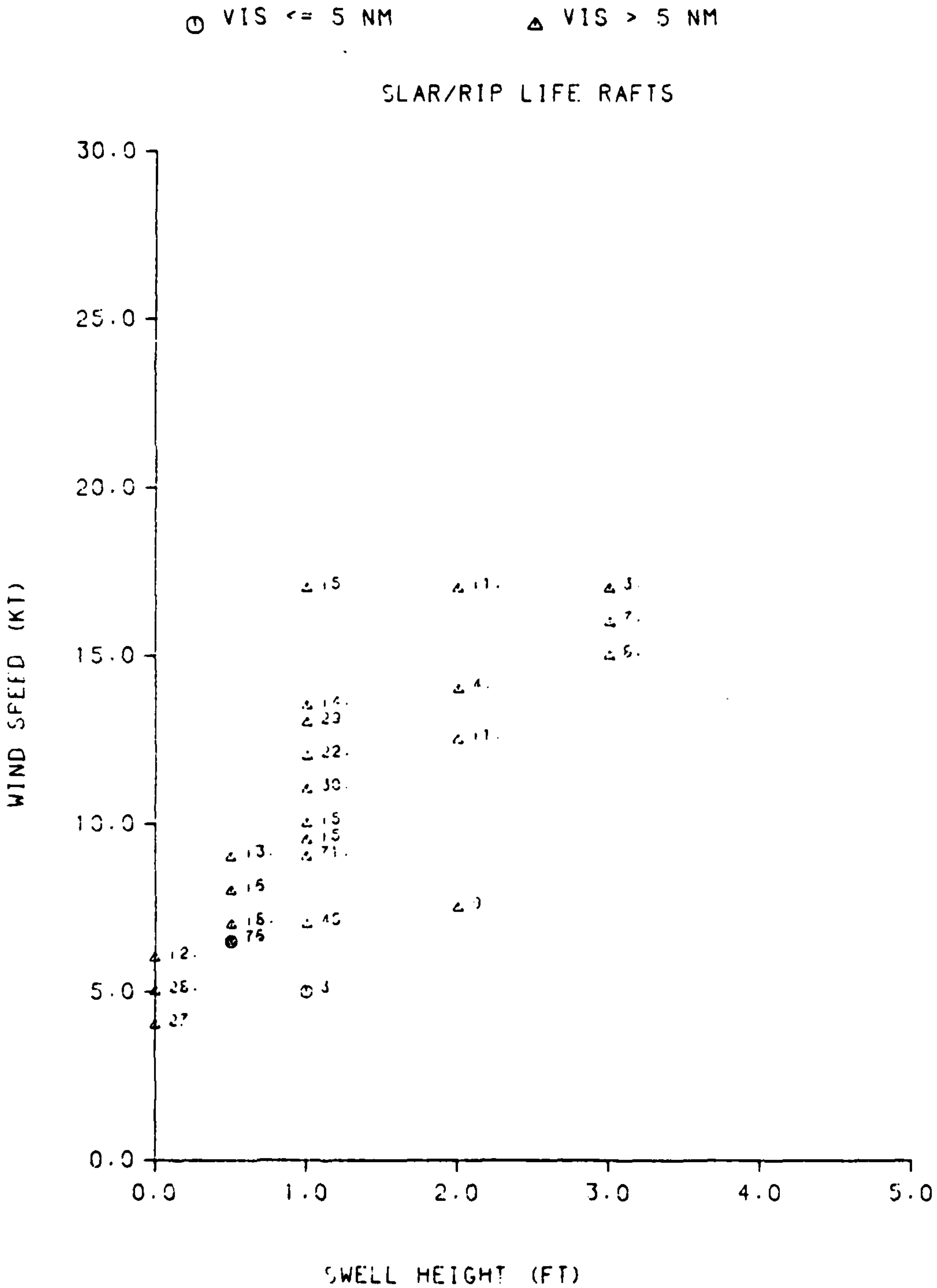


Figure 2-2. Sample Scatter Diagram for SLAR Data

ratios for different values of each parameter. Significant differences in performance were identified at the .10, .05, and .01 alpha levels. Only data at ranges where a detection probability of about 10 percent or greater existed were used in this evaluation. Data at longer ranges were omitted to eliminate misses attributable mainly to effects of range. Results of these comparisons are tabulated in Chapter 3.

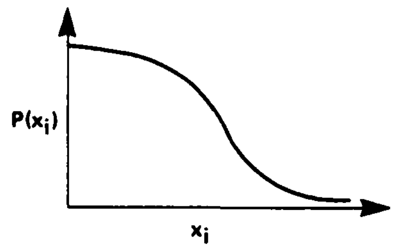
Lateral range curves for each sensor/target type combination were fitted to the empirical data for the range of search altitudes where detection performance was best. These lateral range curves, which were fitted using the LOGODDS regression routine (described in Section 2.8.5), are presented in Chapter 3 for each data base. The area under these curves was integrated from a lateral range equal to the best search altitude (to allow for the blind zone described in Chapter 1) out to the maximum range of the sensor to obtain sweep width for the particular sensor/target combination represented by the data.

2.8.5 Use of LOGODDS Regression Model

The LOGODDS model has been used successfully in analyzing visual detection data from these same experiments (References 11 and 13). This regression technique is a tool that has proven useful in finding the best quantitative relationship between multiple independent variables (x_i) and a probability of interest $P(x_i)$. The independent variables can be continuous (e.g., wind speed or lateral range) or binary (e.g., large boat/small boat or precipitation/no precipitation). Experience has indicated that data that exhibit classic monotonic stimulus-response (S-R) behavior as shown in Sketch 2-5 are best suited to this regression technique.

The fitting function used in the LOGODDS model is:

$$P(x_i) = \frac{1}{1 + e^{-\lambda}}$$



Sketch 2-5. Monotonic (S-R) Curve

where

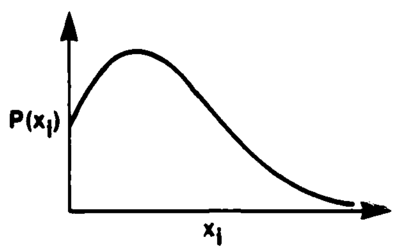
$\lambda = a_0 + a_1x_1 + a_2x_2 + a_3x_3 \ . \ . \ .$

a_i = constants (determined by computer program) and

x_i = independent variable values.

Since LOGODDS was only used in a limited sense for analysis of the SLAR data, further description of this multi-regression technique is not included. Refer to appendix A of Reference 13 for a complete description and discussion of the LOGODDS model.

While the lateral range curves for the SLAR data are not monotonic, but unimodal in shape (Sketch 2-6), a good regression fit to the data was obtainable using a transform on lateral range described below. Empirical data were binned in 3-nm range increments and plotted to determine the inflection point of the lateral range curve. Data files containing a detection/miss indicator, lateral range normalized to the inflection point [i.e., absolute value of (Lateral Range - Inflection Point Range)] and a target-type indicator (i.e., small boat with/without engine or life rafts with/without canopy) were created for the regression analysis. Probability of detection versus lateral range curves were fitted to these data using the LOGODDS routine so that sweep width estimates could be obtained. Since the data collected during these



Sketch 2-6. Unimodal Curve

experiments do not represent a real-time search capability for the SLAR sensor and operator taken together, they should represent an upper bound on detection performance. Thus, sophisticated multivariate regression analysis was not conducted to provide a full set of sweep widths for SLAR search under a wide variety of conditions. Rather, an upper-bound value of sweep width was obtained for each sensor/target-type combination tested by fitting only data that represented the best performance attained for that combination during the experiments. Data collected within the optimum range of search altitude for each sensor/target type combination (determined by the Chi-square tests described earlier) were used to fit the lateral range curves in Chapter 3. No restrictions on the values of other parameters were imposed in compiling data for lateral range curve fitting, since the environmental conditions encountered during these experiments were generally moderate and confined to a limited range of values.

Chapter 3
ANALYSIS RESULTS AND CONCLUSIONS

3.1 INTRODUCTION

Sections 3.2 through 3.6 describe performance of the AOSS and SLAR/RIP systems in detecting 41- to 95-foot vessels, small boats, and life rafts. Section 3.7 presents sweep width estimates for various sensor/target type combinations so that performance can be compared. Section 3.8 discusses the influence of ocean wave/SLAR beam orientation on detection performance which was investigated during the Spring 1980 Experiment only.

Data were compiled during post-experiment analysis of SLAR magnetic tape and film recordings. Therefore, results in this chapter represent an upper bound on SLAR system detection capabilities. In a real-time search scenario, SLAR operators would have less time to scrutinize the SLAR video monitor or film and would be working in a more stressful environment aboard the aircraft. For these reasons, real-time SLAR detection performance would likely be less than that indicated by results presented in this chapter. The sweep width estimates presented in Section 3.7 should be regarded as an upper bound on sweep width attainable with these SLAR systems; they are for comparison only and should not be used as operational search planning guidance.

3.2 SLAR DETECTION OF MEDIUM AND LARGE TARGETS

Figure 3-1 depicts the performance of both SLAR systems in detecting 41- to 95-foot targets.

The AOSS SLAR detected 225 targets of 243 target opportunities for a 93-percent detection rate. Beyond ranges of 18 nm, 75 percent of 36 target opportunities were detected. No unusual combinations of environmental or

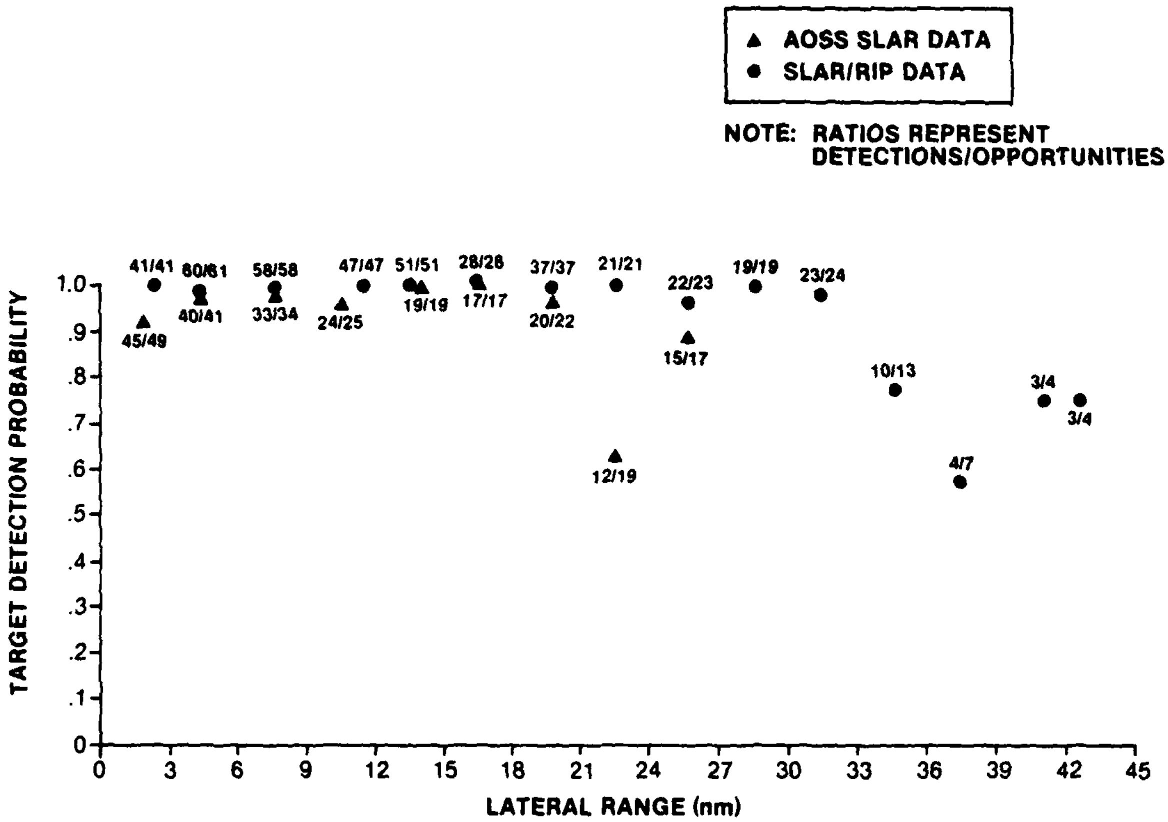


Figure 3-1. AOSS and SLAR/RIP Detection of 41- to 95-foot Targets

controllable parameters existed for the opportunities occurring within the 18- to 27-nm range interval; thus, it is concluded that, near the limits of its antenna pattern, the AOSS SLAR system experiences a slight deterioration in detection performance with these target types.

The SLAR/RIP system detected 427 targets of 438 target opportunities for a 97-percent detection rate. The longer range viewing capability of the SLAR/RIP system produced opportunities for detection out to 45 nautical miles. In the 33- to 45-nm range interval, the detection rate dropped to 71 percent (20 targets of 28 target opportunities detected) from a rate of nearly 100 percent at ranges of less than 33 nautical miles.

The effects of parameters other than range on the performance of these two SLAR systems were negligible over the range of values encountered during the experiments.

3.3 AOSS SLAR DETECTION OF SMALL BOATS

Table 3-1 presents results for this data base of the binning and Chi-square tests described in Section 2.8. Detection/opportunity ratios (actual probability of detection for a specific lateral range interval) for two or more levels of each parameter of interest are presented along the vertical dimension of the table. Mean values of other parameters of interest are listed horizontally in each bin for purposes of comparison.

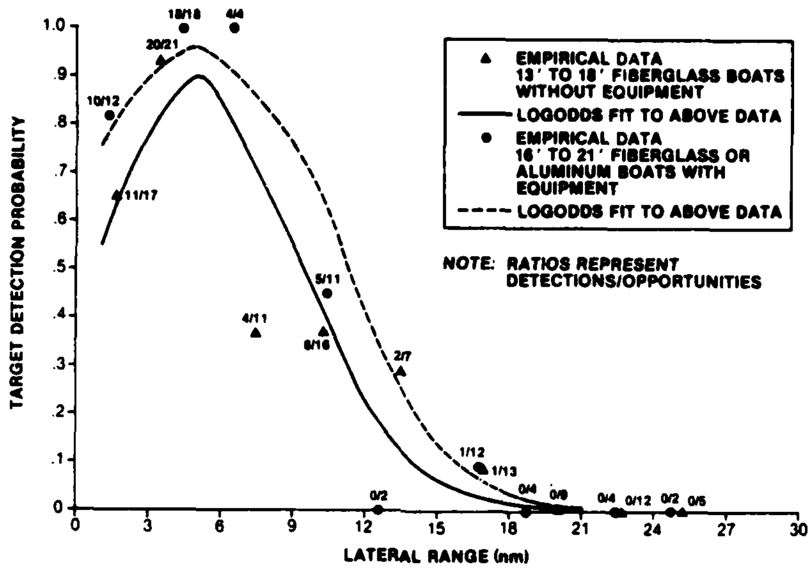
Chi-square tests indicated that target type, altitude, and precipitation had a significant effect on AOSS SLAR detection of small boats within the range of parameters encountered. As would be expected, 16- to 21-foot fiberglass or aluminum boats with metal equipment, such as engine and gas tank, were more easily detected than 13- to 18-foot fiberglass boats without substantial reflective equipment. This difference in detection performance (50 percent versus 36 percent detections) was significant at the .01 alpha level (99-percent confidence level) and is likely attributable to the higher radar cross-section of the metal equipment. As Figure 3-2 indicates, this difference in target detectability is demonstrated by the empirical data at most ranges tested.

At the .01 alpha level, the 2000-foot search altitude resulted in performance that was significantly better than that at the 3000- to 3300-foot altitudes. No significant difference in detection performance was found between search altitudes of 3000 to 3300 feet and 4500 to 5500 feet. Upon combining data from these two altitudes, it was shown that, at the .01 alpha level, a 2000-foot search altitude resulted in performance that was significantly better than that at 3000 to 5500 feet. Similarly, the difference in performance between 1000- to 1300-foot and 3000 to 5500-foot search altitudes was shown to be significant at the .05 alpha level. The LOGODDS regression

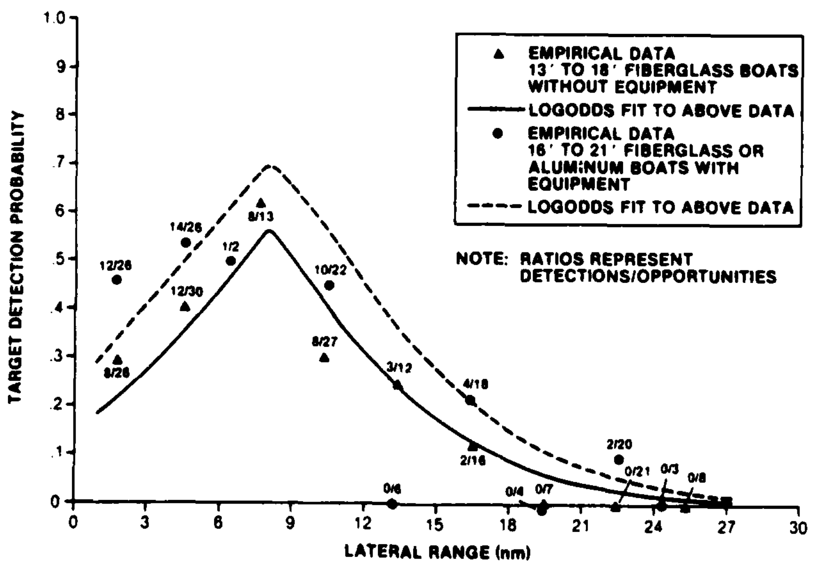
Table 3-1. Influence of Parameters of Interest on AOSS SLAR Detection of Small Boats (Lateral Ranges 0 to 18 nm)

Variable Of Interest	Detections/ Opportunities	Target Detection Probability	Mean Values: Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization (% vertical/ % horizontal)	Image Background (% scattered/ dark)	Precipitation (% of data where present)	Relative Humidity (%)
Target Type										
13'-18' Fiberglass Boats without Equipment [3]	101/284	.36	2681	11.1	8.0	1.5	52/48	32	2	72
16'-21' Fiberglass or Aluminum Boats with Equipment [3]	79/159	.50	3208	11.4	8.6	1.1	60/40	28	3	72
Altitude (ft)										
1000-1300 [2]	16/73	.22	1049	10.4	9.1	2.7	40/60	66	0	67
2000 [2] [3]	82/144	.57	2000	12.5	7.6	1.1	60/40	37	2	72
3000-3300 [3]	49/126	.39	3012	10.6	8.7	1.0	40/60	23	6	75
4500-5500 [2] [3]	33/100	.33	5000	10.6	7.9	1.1	70/30	6	0	71
Visibility (nm)										
1-1.5	28/74	.38	3548	1.5	4.2	0.9	58/42	0	14	88
8-18	152/369	.41	2662	13.1	9.1	1.4	54/46	37	0	68
Wind Speed (knots)										
3-10	152/359	.42	2861	11.1	7.0	1.0	50/50	26	3	71
11-17	28/84	.33	2607	11.7	13.7	2.7	60/40	50	0	64
Swell Height (ft)										
0.5-1.0	136/329	.41	3020	11.0	7.1	0.9	54/46	22	3	75
2-4	44/114	.39	2198	11.7	11.6	2.7	55/45	57	0	63
Antenna Polarization										
Horizontal	87/203	.43	2657	11.1	7.9	1.4	0/100	16	2	72
Vertical	93/240	.39	2937	11.2	8.5	1.3	100/0	0	3	74
Image Background										
Clear/Light	122/307	.40	3169	10.8	7.6	1.1	44/56	0	3	70
Scattered/Dark	58/136	.43	1995	12.1	9.8	1.8	23/77	100	0	73
Precipitation										
None [1]	173/433	.40	2811	11.4	8.3	1.3	54/46	31	0	71
Present [1]	7/10	.70	2700	1.4	4.2	1.0	60/40	0	100	100
Relative Humidity (%)										
55-75	107/265	.40	2578	12.5	9.3	1.6	50/50	42	0	63
76-100	73/178	.41	3152	9.2	6.7	1.0	60/40	13	6	84

[1]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .10 alpha level.
[2]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.
[3]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .01 alpha level.



A. 2000-Foot Search Altitude



B. 3000- To 5500-Foot Search Altitude

Figure 3-2. AOSS SLAR Detection of Small Boats fits shown in Figure 3-2 illustrate the nature of the difference in performance attained at 2000 feet as compared to the 3000- to 5500-foot altitudes. These lateral range curves indicate that detection performance is superior at the 2000-foot search altitude out to ranges of 10 to 12 nautical miles. Beyond this range, the higher search altitudes achieve slightly better results. It is hypothesized that this variability in detection performance with range and altitude is a result of signal strength variations in the AOSS SLAR antenna pattern. The portion of the antenna pattern that provides optimum small-target detection performance moves out in range as search altitude increases, but overall performance deteriorates as altitude is increased beyond 2000 feet.

While the Chi-square test indicated that detection performance was better when precipitation was present in the air, common sense suggests that this result is not meaningful (it is well-known that precipitation does not enhance radar performance). The small amount of data (only 10 detection opportunities) obtained when precipitation was present is almost assuredly responsible for this unlikely outcome.

While graphical presentation indicated that the horizontally polarized antenna performed better than the vertically polarized antenna, the Chi-square test indicated no significant difference in detection performance.

3.4 AOSS SLAR DETECTION OF LIFE RAFTS

Chi-square tests indicated that, in this data base, target type, altitude, visibility, swell height, and precipitation had a significant effect on detection performance.

Seven-man, non-canopied life rafts (with plywood floors) were detected 17 percent of the time, while smaller, 4- to 6-man canopied life rafts (with plywood floors) were detected 30 percent of the time. This difference was significant at the .01 alpha level. One possible explanation for this difference in detectability is that the non-canopied rafts, with very little freeboard, were masked by ocean swells more often than the canopied rafts. Detection opportunities for the 7-man rafts were characterized by somewhat rougher sea conditions (see Table 3-2), which lends additional support to the explanation offered above. Since the construction materials used in the two types of life rafts are similar, differences in the effective surface area presented by the targets under prevailing sea conditions probably account for any difference in detectability.

No significant difference in target detection performance was found between the 2000- and 3000-foot search altitudes. Upon combining data from these two altitudes and comparing performance to that attained at 4000 to 5500 feet, the difference was found to be significant at the .01 alpha level.

Figure 3-3 is a lateral range curve fitted to the empirical data collected at 2000- and 3000-foot search altitudes only using the LOGODDS regression routine. With this restricted data base, the LOGODDS regression fit and Chi-square test indicated no significant difference between the detectability of the two life raft types. Thus, a single lateral range curve is used to represent the upper-bound on detection performance for this sensor/target type combination. While the shape of this curve is similar to those shown in Figure 3-2 (A), detection probabilities are consistently lower at all lateral ranges.

Detection performance was found to be significantly degraded in poor visibility (characterized by precipitation, fog, or thick haze) at the .05 alpha level, probably due to attenuation of returned signal strength by atmospheric scattering. A subset of the low visibility data is that in which precipitation was present. Only 27 detection opportunities occurred under this condition, and Table 3-2 indicates that other environmental conditions were also poor for these opportunities in comparison to the rest of the data base. Under these circumstances, no firm conclusions can be drawn about the effects of precipitation on AOSS SLAR detection of life rafts.

Table 3-2. Influence of Parameters of Interest on AOSS SLAR Detection of Life Rafts (Lateral Ranges 0 to 18 nm)

Variable of Interest	Detections/ Opportunities	Target Detection Probability	Mean Values							
			Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization (% vertical/ % horizontal)	Image Background (% scattered/ dark)	Precipitation (% of data where present)	Relative Humidity (%)
Target Type										
[3] 4-6 Man Canopied Rafts without Radar Reflectors	75/251	.30	3134	10.6	9.2	1.2	50/50	28	5	82
[3] 7-Man Non-Canopied Rafts without Radar Reflectors	15/88	.17	2782	6.6	13.6	1.8	60/40	50	16	80
Altitude (ft)										
500-1000	1/18	.06	583	10.1	28.3	3.0	33/67	1	0	80
[3] 2000	42/99	.42	2000	11.7	7.6	1.0	60/40	37	0	84
[3] 2500[4]	4/39	.10	2500[4]	5.4	20.3	2.7	40/60	85	54	82
[3] 3000	36/93	.39	3000	9.4	8.5	1.0	40/60	18	8	78
[3] 4000-5500	7/90	.08	4960	9.0	7.6	1.1	71/29	6	0	81
Visibility (nm)										
[2] 0-6	22/116	.19	3404	2.1	8.5	1.3	59/41	20	23	86
[2] 10-15	68/223	.30	2854	13.4	11.3	1.4	53/47	41	0	72
Wind Speed (knots)										
3-12	79/277	.29	3166	9.6	7.3	1.0	60/40	24	0	81
17-30	11/62	.18	2492	9.2	23.8	2.7	50/50	77	23	78
Swell Height (ft)										
[2] 0.5-1.0	71/236	.30	3216	9.8	7.0	0.9	55/45	18	4	78
[2] 1.5-3.0	19/103	.18	2645	9.0	18.0	2.4	56/44	71	17	75
Antenna Polarization										
Horizontal	43/152	.28	2819	9.5	10.7	1.4	0/100	24	6	88
Vertical	47/187	.25	3224	9.5	10.0	1.3	100/0	42	4	81
Image Background										
Clear/Light	57/224	.25	3412	9.1	7.7	1.0	49/51	0	7	84
Scattered/Dark	33/115	.29	2323	10.5	15.5	1.9	32/68	100	10	79
Precipitation										
[2] None	88/312	.28	3090	10.3	9.7	1.3	60/40	33	0	83
[2] Present	2/27	.07	2593	1.0	18.3	2.1	50/50	44	100	92
Relative Humidity (%)										
59-70	37/119	.31	3210	13.2	10.1	1.3	50/50	42	0	84
77-100	53/220	.24	2956	7.5	10.4	1.4	58/42	30	12	63

[1] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .10 alpha level.
[2] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.
[3] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .01 alpha level.
[4] 2500-foot altitude characterized by very poor environmental conditions (wind speed/swell/precipitation).

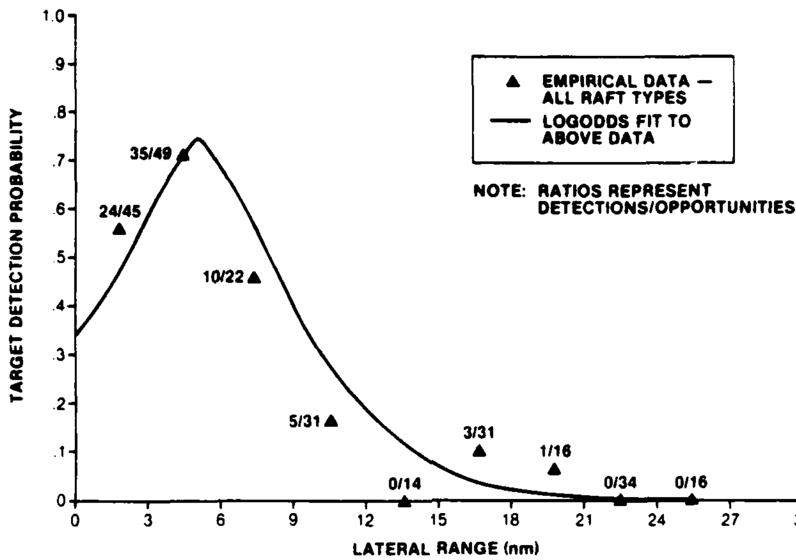


Figure 3-3. AOSS SLAR Detection of Life Rafts (2000- and 3000-foot search altitudes)

The difference in detection performance between low ($\leq$ 1 foot) and moderate (1.5 to 3 feet) sea-swell conditions was found to be significant at the .05 alpha level. A comparison of the high and low wind speed data in Table 3-2 indicates very similar results. The difference in detection performance was not found to be significant by the Chi-square test in this case, however, due to a relatively small sample size in the high wind speed bin (62 opportunities). Since wind speed and swell height are closely related parameters, they might be expected to affect SLAR performance similarly. Swell height has a more direct effect on the SLAR, however, since it is the waves themselves that mask targets and cause sea-return noise in the image. Wind speed has an indirect effect by roughening the sea surface and contributing to the buildup of ocean waves.*

*Wind-driven ocean waves are not necessarily a result of local winds and depend upon other factors, such as fetch and wind duration, in addition to wind speed.

No significant difference in detection performance was indicated between the horizontally and vertically polarized antennas.

3.5 SLAR/RIP DETECTION OF SMALL BOATS

Target type, altitude, visibility, image background, precipitation, and relative humidity were found to have a signficant effect on detection performance in this data base (see Table 3-3).

As with AOSS SLAR, the difference in detection/opportunity ratios for the two small boat types was signficant at the .01 alpha level. In addition, at all ranges, detection probabilities with the RIP are higher than those achieved by the AOSS system and this fact is reflected by the sweep widths presented in Section 3.7.

Performance at search altitudes of 2000 to 3000 feet was similar and better than performance at 5000 feet. Lateral range curves for SLAR/RIP searching for both boat types at 2000 to 3000 feet are shown in Figure 3-4.

Low-visibility conditions were sometimes degraded by precipitation and greater swell heights than were present in high-visibility conditions. While the data indicate visibility may influence SLAR/RIP detection of small boats, effects of visibility cannot be separated from other conditions that may also influence performance.

A comparison of SLAR/RIP imagery with a light background and that with a dark background indicated that the difference between detection/opportunity ratios was significant at the .01 alpha level. In the predecessor to this report (Reference 9), limited data demonstrated that dark image background had a strong negative influence on target detection probability. The data presented in this report (which incorporates data from Reference 9 with a larger amount of more recent data) show image background to have no effect, or, in the case of this particular data base, to have the opposite effect. No

Table 3-3. Influence of Parameters of Interest on SLAR/RIP Detection of Small Boats (Lateral Ranges 0 to 24 nm)

Variable of Interest	Detections/ Opportunities	Target Detection Probability	Mean Values: Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization (% vertical/ % horizontal)	Image Background (% scattered/ dark)	Precipitation (% of data where present)	Relative Humidity (%)
Target Type										
[3] 13'-18' Fiberglass Boats without Equipment	173/383	.45	3381	10.1	9.9	1.5	0/100	54	7	78
[3] 16'-21' Fiberglass or Aluminum Boats with Equipment	158/229	.69	3332	11.5	10.8	1.1	0/100	58	0	74
Altitude (ft)										
[3] 2000	114/202	.56	2000	10.2	9.6	1.4	0/100	51	3	80
[3] 3000	118/198	.60	3000	11.2	11.1	1.4	0/100	65	5	81
[3] 5000	99/212	.47	5000	10.5	10.1	1.3	0/100	51	6	83
Visibility (nm)										
[2] 1.5-7	69/152	.45	3474	5.5	9.2	2.2	0/100	32	19	83
[2] 8-15	262/460	.57	3326	12.3	10.6	1.1	0/100	63	0	75
Wind Speed (knots)										
4-10	202/360	.56	3514	10.7	7.8	1.3	0/100	60	2	82
11-17	129/252	.51	3147	10.5	13.7	1.4	0/100	50	9	80
Swell Height (ft)										
0-1	229/424	.54	3455	11.3	10.1	0.9	0/100	58	2	77
2-3	102/188	.54	3154	9.1	10.6	2.5	0/100	51	12	77
Antenna Polarization										
Horizontal Only	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Image Background										
[3] Clear/Light	111/272	.41	3404	8.8	10.3	1.5	0/100	0	5	83
[3] Scattered/Dark	220/340	.65	3329	12.0	10.2	1.3	0/100	100	5	81
Precipitation										
[3] None	325/583	.56	3354	11.0	10.0	1.3	0/100	56	0	65
[3] Present	6/29	.21	3655	3.8	14.6	2.1	0/100	55	100	98
Relative Humidity (%)										
[2] 59-70	138/227	.61	3370	11.6	9.4	1.1	0/100	61	0	65
[2] 77-100	193/385	.50	3558	10.1	10.7	1.5	0/100	52	8	84

[1]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .10 alpha level.
[2]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.
[3]Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .01 alpha level.

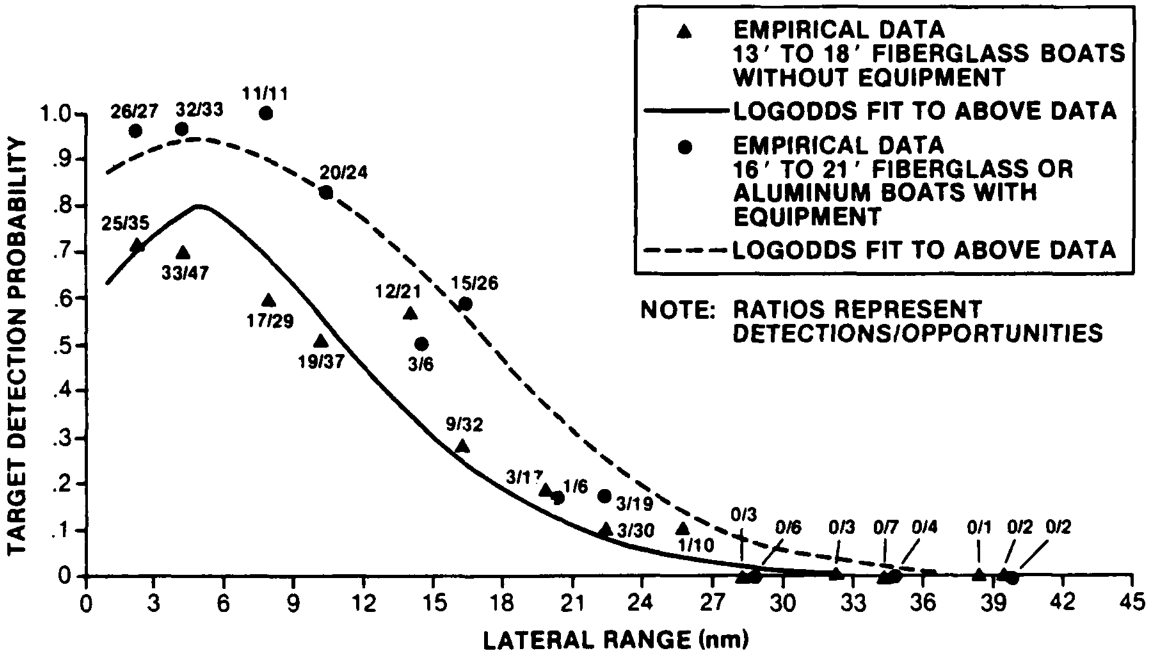


Figure 3-4. SLAR/RIP Detection of Small Boats
(2000- to 3000-foot search altitudes)

ready explanation for this result is apparent to the authors. However, the SLAR/RIP imagery analysis used false-color enhancement at different levels which may have had some bearing on this result.

The presence of precipitation, while again represented in only a very small data sample, demonstrated a strong (.01 alpha level) negative influence on detection performance. This result is consistent with that presented in Section 3.5.

High relative humidity also demonstrated a significant negative influence on detection performance at the .05 alpha level. All 29 detection opportunities that occurred when precipitation was present are included in the high-humidity bin, but this small amount of data is not enough to account fully for the difference in performance.

Using only data collected during the Spring 1980 Experiment, a comparison was made between two to three receiver gain settings (including one which the SLAR/RIP operator deemed optimum) at the same search altitude. Table 3-4 presents the results of this comparison. Highly significant (.01 alpha level) differences in performance were found between gain settings of 2 and 3 (on a scale of 0 to 7) at optimum search altitudes (2000 to 3000 feet) with the higher setting being preferred. At the 5000-foot search altitude, no significant performance difference was found between gain settings of 2 and 3, but these data combined reflected poorer performance than data collected at a gain setting of 4. As Table 3-4 reflects, detection rates tended to increase with gain setting. The data suggest that higher gain settings should have been tested to identify limits at which detection performance begins to deteriorate at given altitudes.

Table 3-4. Influence of Gain Setting on SLAR/RIP Detection of Small Boats During the Spring 1980 Experiment (Lateral Ranges 0 to 24 nm)

Gain Setting	Altitude (ft)	
	2000/3000	5000
	Detections/Opportunities (Probability)	Detections/Opportunities (Probability)
2	74/132 (.56)	17/46 (.37)
3	129/177 (.73) [1]	37/81 (.46) [2]
4	Not tested	29/44 (.66)

[1]Chi-square test indicates the difference between detection/opportunity ratios is significant at the .01 alpha level.

[2]Chi-square test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.

3.6 SLAR/RIP DETECTION OF LIFE RAFTS

Target type, altitude, visibility, and wind speed had significant effects on detection performance in this data base (see Table 3-5).

The influence of raft type on detection performance in this data base was the opposite of that demonstrated with the AOSS SLAR data. In Section 3.4, it was suggested that the higher freeboard of canopied life rafts coupled with lower mean swell height may have accounted for more frequent detection of canopied versus non-canopied life rafts. In the present data base, mean swell height is lower for the non-canopied life rafts (only 0.5 feet versus 1.1 feet for canopied rafts). These near-calm conditions may have caused the detection rate for non-canopied rafts to be significantly better than that for canopied rafts. Due to the limited data available for non-canopied raft targets (only 48 detection opportunities in 0- to 1-foot seas versus 246 opportunities in mostly 1- to 3-foot seas for canopied rafts), it cannot be concluded definitively that either raft type is a stronger SLAR target than the other. Lateral range curves are presented in Figure 3-5 for each raft type separately based upon the limited data available. A single curve for both raft types may be more appropriate. No significant difference in detectability was found between canopied rafts with radar reflectors and non-canopied rafts without radar reflectors in calm sea conditions. The very limited number of opportunities (16 in 0- to 0.5-foot seas) to detect the reflector-equipped rafts does not facilitate a reasonable assessment of their detectability. The only conclusion that can be drawn is that the small, corner-type radar reflector tested did not enhance the detectability of canopied life rafts in calm seas.

Search altitudes of 2000 to 3000 feet provided the best detection performance with SLAR/RIP searching for life rafts. This result is consistent with findings presented in Section 3.5 for small boat targets. At the .01 alpha level, detection performance at search altitudes of 2000 to 3000 feet was shown to be significantly better than detection performance achieved at 5000 feet. No assessment of performance was made for 1000- and 7500-foot search altitudes due to the very small amount of data collected.

Table 3-5. Influence of Parameters of Interest on SLAR/RIP Detection of Life Rafts (Lateral Ranges 0 to 18 nm)

Variable of Interest	Detections/ Opportunities	Target Detection Probability	Mean Values							
			Altitude (ft)	Visibility (nm)	Wind Speed (knots)	Swell Height (ft)	Antenna Polarization (% vertical/ % horizontal)	Image Background (% scattered/ dark)	Precipitation (% of data where present)	Relative Humidity (%)
Target Type										
4-6 Man Canopied Rafts with Radar Reflectors	10/16	.62	3531	11.1	4.9	0.1	0/100	19	0	91
[1] 4-6 Man Canopied Rafts without Radar Reflectors	119/246	.48	3398	11.6	10.6	1.1	0/100	67	0	81
[1] 7-Man Non-Canopied Rafts without Radar Reflectors	31/48	.65	3250	12.6	6.9	0.5	0/100	50	0	82
Altitude (ft)										
1000	0/4	.00	1000	13.0	14.0	2.0	0/100	50	0	82
[3] 2000	52/92	.56	2000	10.2	9.4	1.1	0/100	54	0	74
[3] 3000	67/111	.60	3000	12.2	10.4	0.9	0/100	59	0	82
[3] 5000	41/98	.42	5000	12.4	9.7	0.9	0/100	71	0	84
7500	0/5	.00	7500	15.0	7.0	1.0	0/100	60	0	81
Visibility (nm)										
[2] 1.5-7.0	22/30	.73	2900	4.8	9.0	1.1	0/100	27	0	75
[2] 8.0-15.0	138/280	.49	3434	12.5	9.8	1.0	0/100	65	0	76
Wind Speed (knots)										
[3] 4-10	114/192	.59	3628	12.6	7.4	0.7	0/100	66	0	79
[3] 11-17	46/118	.39	2983	11.4	13.6	1.4	0/100	55	0	82
Swell Height (ft)										
0-1	139/263	.53	3527	11.6	9.1	0.8	0/100	61	0	77
2-3	21/47	.45	2547	12.3	13.5	2.3	0/100	64	0	69
Antenna Polarization										
Horizontal Only	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Image Background										
Clear/Light	62/119	.52	3193	9.9	9.6	0.9	0/100	0	0	83
Scattered/Dark	98/191	.51	3516	12.9	9.9	1.1	0/100	100	0	74
Precipitation										
None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Relative Humidity (%)										
54-70	65/113	.58	3336	11.8	9.7	1.0	0/100	71	0	64
77-94	95/197	.48	3409	11.7	9.8	1.0	0/100	56	0	83

[1] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .10 alpha level.
[2] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.
[3] Chi-Square Test indicates the difference between detection/opportunity ratios is significant at the .01 alpha level.

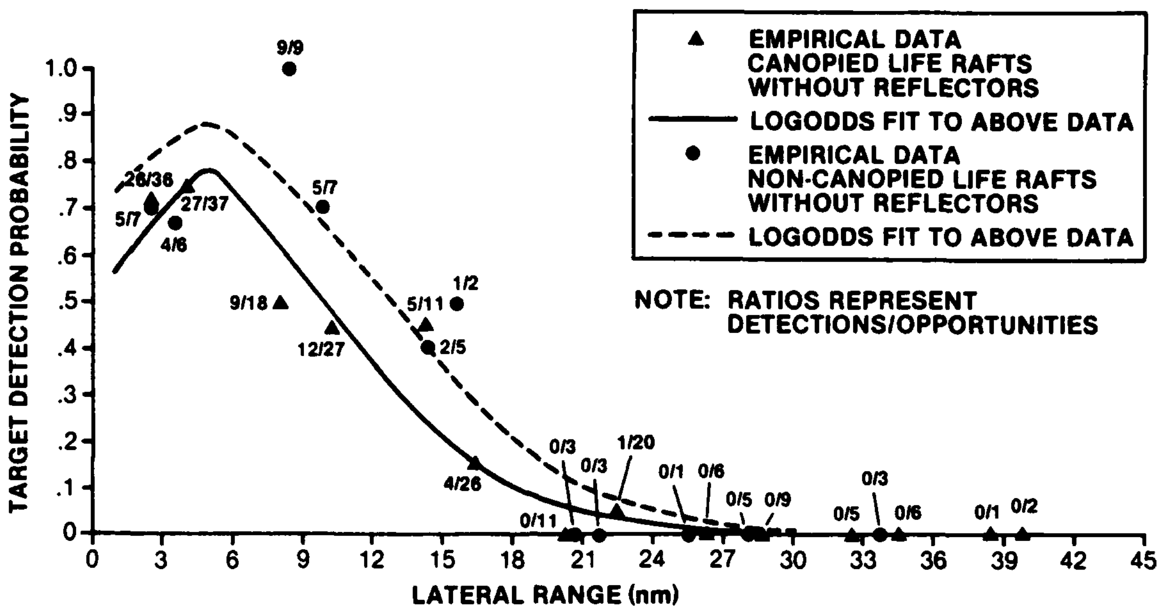


Figure 3-5. SLAR/RIP Detection of Life Rafts
(2000- to 3000-foot search altitudes)

The difference in detection performance achieved under low versus high visibility conditions, significant at the .05 alpha level, is rather surprising. Contrary to results presented in Section 3.5, these data indicate SLAR/RIP performs better in low visibility weather. A possible explanation for this unlikely result is that most of these limited data (only 30 detection opportunities) were collected at a favorable 2000-foot search altitude and/or during 0.5-foot swell height conditions.

Detection performance was significantly better during low wind speed conditions than during high wind speed conditions; swell height demonstrated a similar, but not statistically significant, influence. The limited data in the 2- to 3-foot swell height bin probably explains why swell height itself did not appear to significantly influence detection performance.

Table 3-6 illustrates the influence of gain setting on detection performance using only data collected in the Spring 1980 Experiment. As with the

Table 3-6. Influence of Gain Setting on SLAR/RIP Detection of Life Rafts During the Spring 1980 Experiment (Lateral Ranges 0 to 18 nm)

Gain Setting	Altitude (ft): 2000/3000 Detections/Opportunities (Probability)	Altitude (ft): 5000 Detections/Opportunities (Probability)
2	32/67 (.48)	4/23 (.17)
3	55/81 (.68)	19/43 (.44)
4		15/26 (.58)

[1]Chi-square test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.

small boat targets, performance improved at higher gain settings. At optimum search altitudes (2000 to 3000 feet), a gain setting of 3 was found to be significantly better than a setting of 2 at the .05 alpha level. At the 5000-foot search altitude, no difference between settings of 3 and 4 was demonstrated, but these data taken together reflected significantly better performance (at the .05 alpha level) than data collected at a gain setting of 2. Again, no evidence exists in the data to indicate that optimum gain settings have been identified for these altitudes.

3.7 SUMMARY OF DETECTION PERFORMANCE AND SWEEP WIDTHS

Both the AOSS SLAR and SLAR/RIP systems are capable of detecting 41- to 95-foot metal-hulled Coast Guard vessels out to the systems' maximum ranges in good to moderate weather. A decrease of 20 to 25 percent from nearly 100-percent detection probability occurred with each system in the outer third of its range capability.

Small boats under 21 feet long are more easily detected by both systems when they have significant metal equipment, such as engines, gas tanks, or metal hulls. A search altitude of 2000 feet appears optimal for the AOSS SLAR system searching for small boats and 2000 to 3000 feet seems optimal for SLAR/RIP. Low visibility (1.5 to 7 nm), precipitation, and high humidity (77 to 100 percent), which are related parameters, all demonstrated a negative influence on small boat detection which was found to be significant for one or both sensors.

No definitive conclusions can be drawn as to whether 4- to 6-man canopied or 7-man non-canopied life rafts are more easily detected by SLAR. The authors suspect that detectability of the two raft types is similar under calm conditions and that the canopied rafts are slightly more detectable in moderate (1 to 3 foot) swells. Limited data demonstrated no improvement in the detectability of canopied life rafts resulting from use of small, corner-type radar reflectors. Search altitudes of 2000 to 3000 feet appear to be optimal for both SLAR systems when searching for life rafts. Low visibility (< 7 nm), moderate wind speed (11 to 30 knots), moderate swell height (1.5 to 3 feet), and precipitation all demonstrated a negative influence on life raft detection which was significant for one or both sensors.

The preceding paragraphs present an overall picture of results obtained during the experiments. While some specific results differ from the above generalizations, the differences are typically attributable to relatively small data sample size.

Sweep widths based upon LOGODDS regression fits to data collected at optimum search altitudes are presented in Table 3-7 for each sensor/target type combination tested. The overall superiority of the SLAR/RIP over the AOSS SLAR is demonstrated by higher sweep width values for all target types. Sweep width estimates are based upon post-experiment data reconstruction,

Table 3-7. Sweep Width Estimates with 90-Percent Confidence Limits for SLAR Searches at Optimum Search Altitudes

SLAR Type	Target Type	Sweep Widths: Lower 90-Percent Confidence Limit (nm)	Sweep Widths: Estimate (nm)	Sweep Widths: Upper 90-Percent Confidence Limit (nm)	Optimum Search Altitudes (ft)
AOSS SLAR	41'-95' Coast Guard Vessels	22.0	23.6	24.9	None determined[1]
	13'-18' Fiberglass Boats without Equipment	6.5	8.0	9.6	2000
	16'-21' Fiberglass or Aluminum Boats with Equipment	8.6	10.4	12.3	2000
	4-6 Man Canopied Life Rafts without Radar Reflectors	5.2	6.3	7.6	2000-3000
	7-Man Non-Canopied Life Rafts without Radar Reflector	5.2	6.3	7.6	2000-3000
SLAR/RIP	41'-95' Coast Guard Vessels	38.5	40.8	42.6	None determined[2]
	13'-18' Fiberglass Boats without Equipment	9.7	10.6	11.5	2000-3000
	16'-21' Fiberglass or Aluminum Boats with Equipment	15.7	16.9	18.2	2000-3000
	4-6 Man Canopied Life Rafts without Radar Reflectors[3]	8.1	9.0	10.1	2000-3000
	7-Man Non-Canopied Life Rafts without Radar Reflector	10.3	12.0	13.9	2000-3000

[1]Data collected at altitudes from 1000 to 5000 feet.

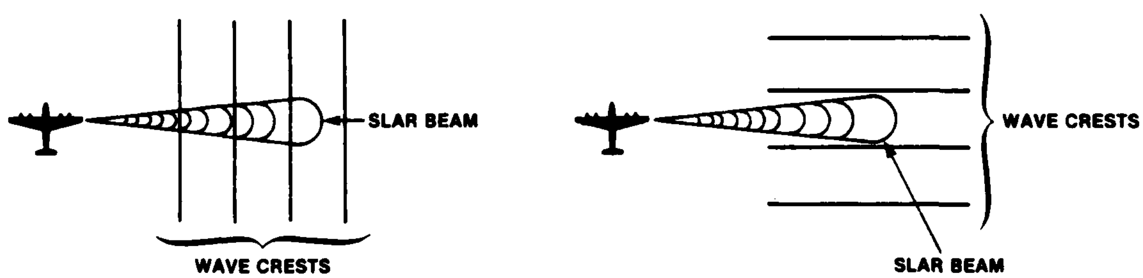
[2]Data collected at altitudes from 1000 to 7500 feet.

[3]Data collected under higher wind conditions than for non-canopied life rafts; see Table 3-5.

optimum search altitudes, and good to moderate environmental conditions; as such, <u>they should not be used by SAR planners to represent the real-time capability of SLAR aircraft to detect these targets under all operational search conditions</u>. Rather, they represent an upper bound for SLAR detection performance.

3.8 INFLUENCE OF OCEAN WAVE/SLAR BEAM ORIENTATION ON DETECTION PERFORMANCE

During the Spring 1980 Experiment, data collection was designed so that differences in SLAR detection performance attributable to the orientation of ocean wave crests relative to the direction of SLAR beam propagation could be identified. Two orientations were tested: wave crests approximately perpendicular and parallel to the direction of SLAR beam propagation (see Sketches 3-1 and 3-2). However, for the perpendicular orientation, wave motion relative to the SLAR beam (i.e., advance or retreat) was not recorded.



Sketch 3-1. Perpendicular Orientation   Sketch 3-2. Parallel Orientation

Unfortunately, swell heights during the Spring 1980 Experiment ranged only from 0.5 to 2 feet with most data collected during about 1-foot swells. Consequently, the influence of this parameter was probably not tested to its full potential. Table 3-8 summarizes the results of binning the data in the same manner used to complete Tables 3-1 through 3-3 and 3-5.

Table 3-8. Influence of Ocean Wave/SLAR Beam Orientation on Detection Performance (Spring 1980 data only)

Sensor/Target Type	Wave/Beam Orientation	
	Perpendicular	Parallel
	Detections/Opportunities (Probability)	Detections/Opportunities (Probability)
SLAR/RIP Small Boats[1]	141/233 (.61)	145/247 (.59)
SLAR/RIP Life Rafts[2,3]	65/109 (.60)	60/131 (.46)
AOSS SLAR Small Boats[2]	73/179 (.41)	78/171 (.46)
AOSS SLAR Life Rafts[2,4]	36/138 (.26)[4]	47/127 (.37)

[1]Lateral ranges, 0 to 24 nm only.

[2]Lateral ranges, 0 to 18 nm only.

[3]Chi-square test indicates the difference between detection/opportunity ratios is significant at the .05 alpha level.

[4]Chi-square test indicates the difference between detection/opportunity ratios is significant at the .10 alpha level.

Significant performance differences were found with both SLAR systems searching for life rafts. The performance difference was significant at the .05 alpha level for the AOSS system searching for life rafts and at the .10 alpha level for the SLAR/RIP system searching for life rafts. No significant effects on detection of small boats were found for either sensor in this data base. It is somewhat disturbing that conflicting results are presented in Table 3-8. The data imply that flying a search pattern so the SLAR beam is perpendicular to ocean wavefronts is advantageous to SLAR/RIP, while orienting the SLAR beam parallel to ocean wavefronts is advantageous to the AOSS system. Common sense suggests that this conclusion is not reasonable; one would expect SLAR to detect targets more readily when the beam propagates parallel to the wave crests and troughs rather than across wavefronts that intermittently hide small targets such as life rafts. A more likely explanation for these differences can be found in the conduct of the experiment. During the Spring 1980 Experiment, both SLAR aircraft usually searched simultaneously using the same target array. To avoid mutual interference, one aircraft executed a search pattern with a major axis oriented parallel to the ocean wavefronts, while the other aircraft executed a search pattern oriented perpendicular to the wavefronts. Thus, it is possible that overall environmental conditions were slightly more favorable when the AOSS aircraft was searching with its SLAR oriented parallel to the wavefronts and the SLAR/RIP aircraft was searching with a perpendicular orientation.

The authors feel that the explanation offered above is more reasonable than the results implied in Table 3-8 and conclude that no clear effects of wave/beam orientation have been demonstrated in this data base.

Chapter 4
SEARCH GUIDANCE AND RECOMMENDATIONS

4.1 EMPLOYMENT OF SLAR IN THE SAR MISSION

This section discusses issues pertinent to the use of SLAR as a SAR sensor and addresses the issues of where, when, and how SLAR should be employed in the SAR mission.

4.1.1 Search Areas and Mission Types

Because SLAR is a wide-area sensor and is not selective of specific target types and colors the way a human lookout can be, it is best suited to search areas with low traffic density. For example, in moderately busy Block Island Sound where these experiments were conducted, a very high false alarm rate was experienced when real-time detection and classification of targets was attempted.

SLAR is best suited to SAR missions involving large search areas in which target position is very uncertain. For example, a scenario of this type may have developed during the PRINSENDAM incident off the Alaska Coast in 1980 if rescue units had not arrived on-scene as quickly as they did. SLAR would have been suited to search for the widely separated, drifting lifeboats.

SLAR may be the only sensor available in weather conditions that prevent effective visual search because of darkness, fog, precipitation, or high sea/swell state. Under these circumstances in time-critical situations, it may be beneficial to use SLAR even where traffic density is normally high.

4.1.2 Search for Medium to Large Targets

These experiments have demonstrated that, under moderate to excellent weather conditions, metal-hulled vessels longer than 40 feet are detected nearly 100 percent of the time. In this case, SLAR can be considered a definite detection law sensor (see Section 1.3) with its minimum detection range from the flight track being a distance approximately equal to aircraft altitude and maximum detection range being about 27 nm (for AOSS SLAR) or about 55 nm (for SLAR/RIP). Since some degradation of detection performance was noted in the outer third of each sensor's range capability, search track spacing should be chosen so that this portion of the SLAR lateral range curve overlaps on successive search legs. Figure 4-1 illustrates this method. If conditions permit, visual scanners should be used to compensate for the SLAR blind zone (see Section 4.1.3). Scanners should concentrate on the area directly ahead of the aircraft and to each side a distance slightly greater

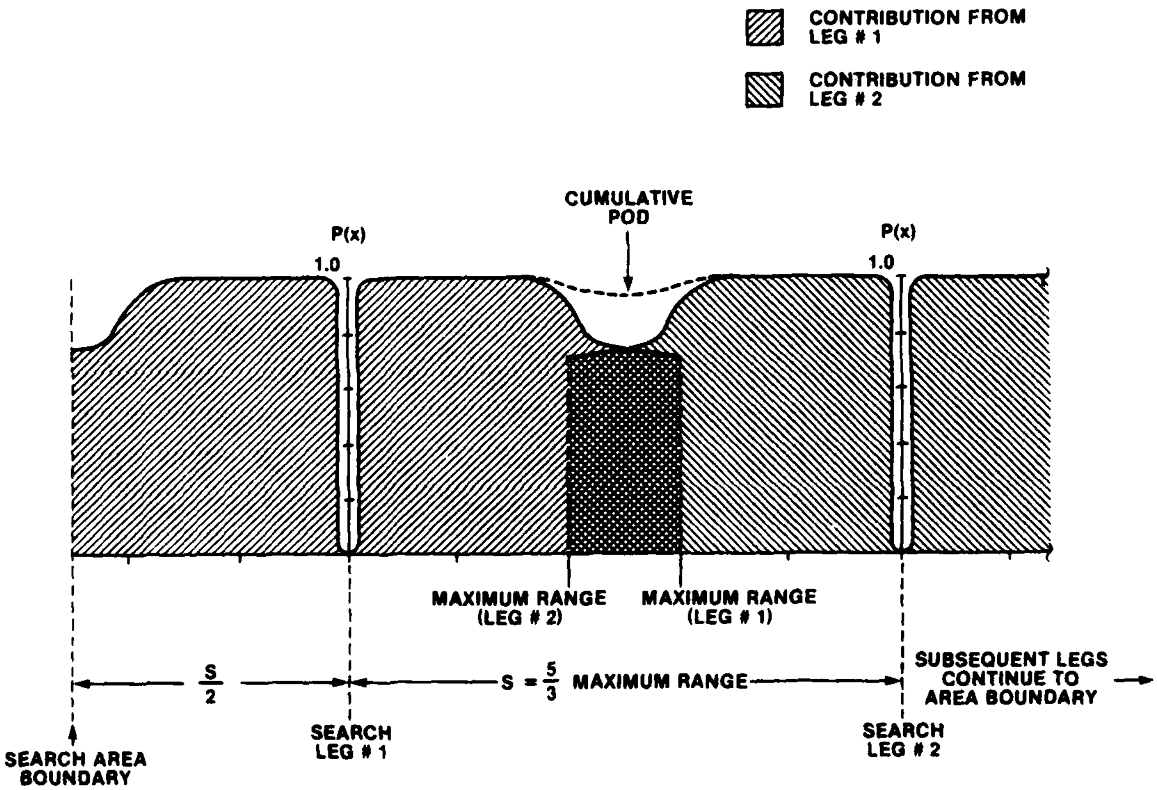


Figure 4-1. Example of Search Area Coverage: SLAR Searching for 41- to 95-foot Metal-Hulled Boats

than the search altitude. When conditions do not permit visual search to compensate for the blind zone, a second SLAR search should be conducted with tracklines offset from those of the first search a distance approximately equal to one third the maximum detection range.

With medium to large metal-hulled targets, a POD of nearly 100 percent should be achievable in good weather if the methods described above are used and the aircraft is able to execute its search pattern precisely.

4.1.3 Search for Small Boats and Life Rafts

Optimizing SLAR usage presents a more complex problem when searching for small targets. The target detection probability versus lateral range curve no longer reflects a definite detection capability but is unimodal (see Figures 3-2 through 3-5) with maximum detection probabilities that can range from 0 to 1. The non-uniform nature of these lateral range curves makes it difficult to determine what track spacing (S) should be used to attain a desired cumulative probability of detection (POD) for the search. Unlike visual search, where sweep width (W) is used to assign track spacing for a desired POD based upon the inverse-cube detection law (see Reference 7), SLAR searches must be planned to compensate for the blind zone (especially when supplementary visual search is impossible) and to achieve fairly uniform detection probability throughout the search area. Figure 4-2 illustrates combined SLAR/visual search lateral range curves. Figure 4-3 illustrates the area coverage that would be attainable with SLAR/RIP alone searching for a canopied life raft assuming that the appropriate lateral range curve shown in Figure 3-5 applies to an operational search and that a 24-nm track spacing is used. The 24-nm track spacing results in virtually no filling-in of the blind zone, but provides a reasonably narrow range (.58 to .78) of detection probabilities between tracks. A subsequent search of the area, if offset about one-fourth track spacing from the initial search, would fill in the areas left unsearched due to the blind zone and smooth the "dip" in POD that occurs midway between tracks. In addition, cumulative POD increases throughout the search area with each subsequent search.

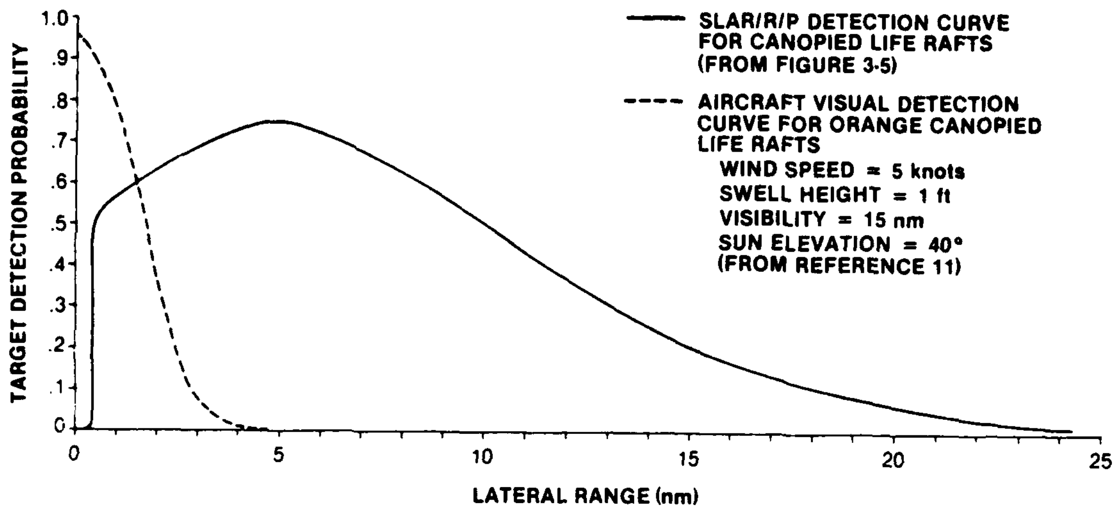


Figure 4-2. Example of Combined SLAR/RIP and Visual Lateral Range Curves (canopied life raft target, good conditions)

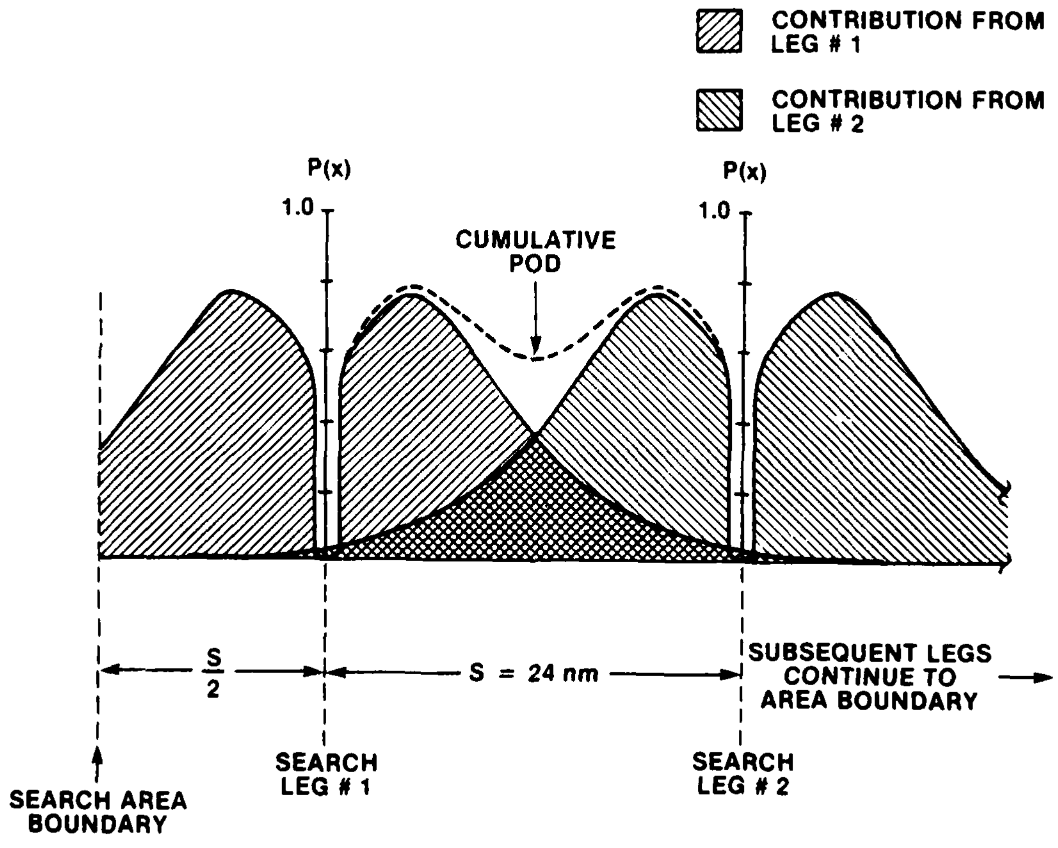


Figure 4-3. Example of Search Area Coverage: SLAR/RIP Searching for Canopied Life Rafts (2000- to 3000-foot search altitudes)

4.2 SLAR SEARCH PLANNING AND POD PREDICTION

It is difficult to determine by inspection exactly what track spacing will yield uniform area coverage while attaining the highest possible POD for a given amount of SLAR search time. Each unique combination of target type, SLAR type, and environmental conditions will be represented by a somewhat different lateral range curve. How, then, can a search planner determine the track spacing to assign a SLAR-equipped search unit? The authors feel that the Coast Guard's Computer-Assisted Search Planning (CASP) model (Reference 14), which computes POD by "driving" a lateral range curve through a simulated search, will be the most effective means of determining desired track spacing and predicting POD for a SLAR search. By using an iterative approach, CASP would be able to determine the track spacing that would result in the highest cumulative POD and most uniform search area coverage for a given amount of search time. The manual SLAR search planning method should depend upon tabulated data from CASP runs made using empirically derived lateral range curves representing a full range of target types and environmental conditions. Lateral range curves that represent the real-time, operational capability of present and future SLAR systems to detect targets of interest under a full range of environmental conditions will be needed to achieve this capability.

4.3 SLAR AS AN ELT SENSOR

SLAR shows great promise in the Coast Guard enforcement of laws and treaties (ELT) mission. Fishery patrol counts and drug interdiction surveillance focus on targets as large or larger than the 41- to 95-foot Coast Guard target vessels used during these experiments. Since SLAR has proven to be very successful at detecting targets of this size under the environmental conditions encountered during these experiments, it should be capable of surveying very large portions of U.S. waters quickly and reliably. A single SLAR-equipped aircraft could cover in a few hours an area that would require several surface vessels a number of days to survey using visual and surface radar sensors. Coded X-band radar transponders, if installed on fishing vessels, could aid in their identification.

It is emphasized that SLAR used in the ELT mission would function primarily as a counting mechanism. For example, in known fishery areas, SLAR could obtain an indication of the level of activity present. Likewise, in ELT, SLAR could obtain an indication of activity in regions of concern. To check SLAR contacts would require either a visual confirmation or the use of other remote sensors, such as the low-level light television (LLLTV) in the proposed AIREYE package (Reference 15).

4.4 RECOMMENDATIONS

The following recommendations are made for future research, development, testing, and evaluation of SLAR for Coast Guard missions:

- Test larger (25- to 50-man) life rafts and life boat targets of the type one would expect in an open-ocean SAR mission involving airplane or cruise ship mishaps.

- Evaluate SLAR detection capability for medium and large targets under more severe environmental conditions and a greater range of search altitudes.

- During future tests of the AN/APS-94D SLAR systems, evaluate real-time, operational detection capability in an open-ocean search scenario rather than the upper-bound system capability presented here. Use previous types of targets tested as well as those mentioned above.

- Do not include highly subjective parameters, such as image background, as independent variables of interest in future SLAR tests.

- Conduct tests of new Coast Guard SLARs (i.e., the AN/APS-131) in two phases:

  1. A system performance evaluation based upon post-experiment reconstruction to identify significant parameters and

  2. Evaluation of real-time, operational detection capability in an open-ocean search scenario.

- Develop lateral range curves that represent the real-time, operational detection capability of present and planned Coast Guard SLAR systems for an appropriate range of target types and environmental conditions. The curves should be provided as inputs to the CASP model.

- Ensure that SLAR operators are expertly trained in the alignment and operation of their SLAR equipment and in making optimum use of all image processing capabilities of a RIP, if available. Operators should also be able to spot and classify common SAR targets in real time on their video monitors and film displays.

- In future radar image processors, include state-of-the-art algorithms that facilitate automatic recognition, classification, and tracking of as wide a variety of SAR targets as is technologically feasible.

- Identify optimum gain setting/search altitude combinations for searches involving common SAR targets during any future SLAR/RIP tests.

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Appendix A
RAW DATA

This appendix contains raw data files for individual SLAR type/target type combinations on a daily basis. Aggregate files were created for life rafts, small boats, and larger boats. Aggregate files were used in the binning of data and also for the LOGODDS computer regression model runs.

Pages A-2 and A-3 contain keys to the format of the data files. Data collected in 1978 and 1979 begins on page A-4; data collected in 1980 begins on page A-21.

KEY FOR 1978 AND 1979 DATA

Column 1: Detection (1 = yes, 0 = no)
Column 2: Lateral Range (nautical miles)
Column 3: Altitude (feet)
Column 4: Meteorological Visibility (nautical miles)
Column 5: Wind Velocity (knots)
Column 6: Swell Height (feet)
Column 7: Antenna Polarization (1 = vertical, 0 = horizontal)
Column 8: Image Background (1 = dark, 0 = light)
Column 9 (SLAR/RIP only): Gain (setting selected)
Column 9 (AOSS): / Column 10 (SLAR/RIP): Relative Humidity (tenths)
Column 10 (AOSS): / Column 11 (SLAR/RIP): Precipitation (1 = present, 0 = none)
Column 11 (AOSS): / Column 12 (SLAR/RIP): Target Code (explained below)

TARGET CODES

Life Rafts	Small Boats	Coast Guard Boats and Cutters
1 = Canopied with radar reflector	1-9 = 13'-18' Fiberglass without engine	1 = 42' UTB
		2 = 41' UTB
2 = Canopied without radar reflector	10-12 = 16'-19' Fiberglass with engine	3 = 44' MLB
		4 = 82' WPB
3 = No canopy or reflector	13 = 21' Aluminum with engine	5 = 95' WPB

KEY FOR 1980 DATA

Column 1: Detection (1 = yes, 0 = no)
Column 2: Relative Wave Direction (1 = parallel, 0 = perpendicular)
Column 3: Lateral Range (nautical miles)
Column 4: Altitude (feet)
Column 5: Meteorological Visibility (nautical miles)
Column 6: Wind Velocity (knots)
Column 7: Swell Height (feet)
Column 8: Antenna Polarization (1 = vertical, 0 = horizontal)
Column 9: Image Background (1 = dark, 0 = light)
Column 10 (SLAR/RIP only): Gain (setting selected)
Column 10 (AOSS): / Column 11 (SLAR/RIP): Relative Humidity (percent)
Column 11 (AOSS): / Column 12 (SLAR/RIP): Precipitation (1 = present, 0 = none)
Column 12 (AOSS): / Column 13 (SLAR/RIP): Target Code (explained below)

TARGET CODES

Life Rafts	Small Boats	Coast Guard Boats and Cutters
1 = Canopied with radar reflector	1-9 = 13'-18' Fiberglass without engine	1 = 42' UTB
		2 = 41' UTB
2 = Canopied without radar reflector	10-12 = 16'-19' Fiberglass with engine	3 = 44' MLB
		4 = 82' WPB
3 = No canopy or reflector	13 = 21' Aluminum with engine	5 = 95' WPB

HC130 20 SEPT 78 TARGETS:42'BOATS

1	5.50	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	1.00
1	8.25	3300.00	15.00	3.00	1.00	1.00	.00	.63	.00	1.00
1	11.20	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	1.00
1	2.50	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	1.00
1	6.80	2000.00	15.00	3.00	1.00	1.00	.00	.55	.00	1.00
1	11.10	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	1.00
1	10.05	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	1.00
1	5.70	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	1.00
1	2.15	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	1.00
1	2.00	1300.00	15.00	5.00	2.00	1.00	1.00	.63	.00	1.00
1	2.35	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	1.00
1	2.50	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	1.00
1	3.30	1000.00	15.00	5.00	1.00	.00	1.00	.55	.00	1.00
1	1.10	1000.00	15.00	5.00	1.00	.00	1.00	.55	.00	1.00
1	6.80	1000.00	15.00	5.00	1.00	1.00	.00	.55	.00	1.00
0	.50	1000.00	10.00	7.00	1.00	.00	1.00	.63	.00	1.00
1	4.25	1000.00	10.00	7.00	1.00	.00	.00	.63	.00	1.00
0	3.38	1000.00	10.00	7.00	1.00	.00	1.00	.63	.00	1.00
1	9.20	1000.00	10.00	7.00	1.00	1.00	.00	.63	.00	1.00
1	11.90	1000.00	10.00	7.00	1.00	.00	.00	.63	.00	1.00

HC130 20 SEPT 78 TARGETS: 16'BOATS

1	5.40	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	13.00
1	9.90	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	12.00
0	11.20	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	2.00
1	9.50	3300.00	15.00	3.00	1.00	1.00	.00	.63	.00	13.00
1	13.30	3300.00	15.00	3.00	1.00	.00	.00	.63	.00	13.00
1	5.35	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	13.00
1	11.10	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	2.00
1	9.90	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	12.00
1	9.50	2000.00	15.00	3.00	1.00	1.00	.00	.55	.00	13.00
1	13.30	2000.00	15.00	3.00	1.00	.00	.00	.55	.00	13.00
1	7.90	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	13.00
1	6.20	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	2.00
0	11.00	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	12.00
1	5.60	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	13.00
0	.00	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	13.00
1	7.32	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	12.00
1	5.55	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	12.00
0	4.10	1300.00	15.00	5.00	2.00	1.00	1.00	.63	.00	13.00
1	4.60	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	13.00
1	3.05	1300.00	15.00	5.00	2.00	1.00	.00	.63	.00	12.00
0	.85	1300.00	15.00	5.00	2.00	.00	.00	.63	.00	13.00
1	5.25	1000.00	15.00	5.00	1.00	.00	1.00	.55	.00	12.00
0	.90	1000.00	15.00	5.00	1.00	.00	1.00	.55	.00	2.00

0	6.70	1000.00	15.00	5.00	1.00	.00	.00	.55	.00	13.00
1	5.00	1000.00	15.00	5.00	1.00	.00	.00	.55	.00	2.00
1	2.95	1000.00	15.00	5.00	1.00	.00	.00	.55	.00	2.00
0	1.55	1000.00	15.00	5.00	1.00	1.00	1.00	.55	.00	12.00
0	5.60	1000.00	15.00	5.00	1.00	1.00	1.00	.55	.00	12.00
0	10.45	1000.00	15.00	5.00	1.00	1.00	.00	.55	.00	13.00
1	2.35	1000.00	15.00	5.00	1.00	1.00	1.00	.55	.00	12.00
0	7.00	1000.00	15.00	5.00	1.00	1.00	.00	.55	.00	2.00
0	7.30	1000.00	15.00	5.00	1.00	1.00	1.00	.55	.00	13.00
0	6.02	1000.00	10.00	7.00	1.00	.00	.00	.63	.00	12.00
0	1.85	1000.00	10.00	7.00	1.00	.00	.00	.63	.00	2.00
0	2.20	1000.00	10.00	7.00	1.00	1.00	1.00	.63	.00	12.00
0	1.13	1000.00	10.00	7.00	1.00	.00	1.00	.63	.00	2.00
0	8.20	1000.00	10.00	7.00	1.00	1.00	.00	.63	.00	13.00
0	5.30	1000.00	10.00	7.00	1.00	.00	.00	.63	.00	12.00
0	.00	1500.00	15.00	5.00	2.00	.00	.00	.63	.00	13.00

HC130 21 SEPT 78 TARGETS:42'BOATS

1	9.65	3000.00	8.00	10.00	2.00	.00	.00	.65	.00	1.00
1	11.50	2000.00	8.00	11.00	4.00	1.00	.00	.65	.00	1.00
0	1.40	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	1.00
1	.75	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	1.00
1	2.35	1000.00	8.00	10.00	2.00	1.00	1.00	.71	.00	1.00
1	4.10	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	1.00
0	7.30	1000.00	8.00	12.00	4.00	1.00	.00	.65	.00	1.00
1	1.60	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	1.00
1	3.60	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	1.00
1	5.65	1000.00	8.00	12.00	4.00	.00	.00	.65	.00	1.00

HC130 21 SEPT 78 TARGETS: 16'BOATS

1	9.80	3000.00	8.00	10.00	2.00	.00	.00	.65	.00	9.00
0	6.00	3000.00	8.00	10.00	2.00	.00	.00	.65	.00	2.00
1	9.10	3000.00	8.00	10.00	2.00	.00	.00	.65	.00	4.00
0	13.10	3000.00	8.00	10.00	2.00	1.00	.00	.65	.00	4.00
0	10.25	3000.00	8.00	10.00	2.00	1.00	.00	.65	.00	2.00
1	9.95	2000.00	8.00	11.00	4.00	.00	.00	.65	.00	2.00
0	12.80	2000.00	8.00	11.00	4.00	.00	.00	.65	.00	4.00
1	6.10	2000.00	8.00	11.00	4.00	1.00	.00	.65	.00	4.00
0	6.10	2000.00	8.00	11.00	4.00	1.00	1.00	.65	.00	2.00
0	9.55	2000.00	8.00	11.00	4.00	1.00	.00	.65	.00	9.00
0	5.00	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	4.00
0	4.95	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	2.00
0	.40	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	7.00
0	3.10	1000.00	8.00	10.00	2.00	1.00	1.00	.71	.00	2.00
0	1.20	1000.00	8.00	10.00	2.00	1.00	1.00	.71	.00	4.00
0	1.38	1000.00	8.00	10.00	2.00	1.00	1.00	.71	.00	4.00
0	.90	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	2.00
0	3.10	1000.00	8.00	10.00	2.00	1.00	1.00	.71	.00	9.00
0	.80	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	2.00

0	3.10	1000.00	8.00	10.00	2.00	.00	1.00	.71	.00	4.00
0	11.00	1000.00	8.00	12.00	4.00	1.00	.00	.65	.00	9.00
0	4.40	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	4.00
0	1.88	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	4.00
1	8.25	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
0	6.50	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	9.00
0	.00	1000.00	8.00	12.00	4.00	1.00	.00	.65	.00	4.00
0	1.10	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
0	2.30	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	4.00
0	4.17	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
0	2.32	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	9.00
0	4.08	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	4.00
0	[illegible]	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
0	2.60	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	2.00
0	6.09	1000.00	8.00	12.00	4.00	1.00	.00	.65	.00	4.00
0	.30	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
0	1.50	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
0	7.90	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	4.00
1	4.50	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
1	3.45	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	9.00
0	7.00	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	2.00
0	4.90	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	4.00
0	2.96	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	4.00
0	4.85	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
0	.90	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
1	1.15	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	9.00
0	2.20	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	2.00
0	1.00	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	4.00
0	1.00	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	4.00
0	.86	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
0	3.05	1000.00	8.00	12.00	4.00	1.00	1.00	.65	.00	9.00
1	5.05	1000.00	8.00	12.00	4.00	.00	.00	.65	.00	9.00
0	1.10	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	2.00
0	2.87	1000.00	8.00	12.00	4.00	.00	1.00	.65	.00	4.00
0	.00	1000.00	8.00	12.00	4.00	.00	.00	.65	.00	4.00

HC-130 26 JANUARY 1979 TARGETS:RAFTS

0	4.20	1000.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	2.00
0	4.70	1000.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	3.00
1	4.10	1000.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	3.00
0	11.00	2500.00	10.00	20.00	3.00	.00	1.00	1.00	.00	2.00
0	10.60	2500.00	10.00	20.00	3.00	.00	1.00	1.00	.00	3.00
0	10.90	2500.00	10.00	20.00	3.00	.00	1.00	1.00	.00	3.00
1	5.00	2500.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	2.00
0	4.80	2500.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	3.00
0	5.00	2500.00	10.00	20.00	3.00	1.00	1.00	1.00	.00	3.00
0	5.00	2500.00	10.00	20.00	3.00	.00	1.00	.60	.00	2.00
0	5.00	2500.00	10.00	20.00	3.00	.00	1.00	.60	.00	3.00
0	5.00	2500.00	10.00	20.00	3.00	.00	1.00	.60	.00	3.00
0	10.00	2500.00	10.00	20.00	3.00	1.00	1.00	.60	.00	2.00
0	10.00	2500.00	10.00	20.00	3.00	1.00	1.00	.60	.00	3.00
0	10.00	2500.00	10.00	20.00	3.00	1.00	1.00	.60	.00	3.00
1	7.50	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	2.00
0	7.20	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	3.00
1	7.10	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	3.00
0	11.30	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	2.00
0	10.50	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	3.00
0	11.20	2500.00	10.00	10.00	3.00	.00	1.00	.70	.00	3.00

HC-130 27 JANUARY 1979 TARGETS:RAFTS

0	11.00	2500.00	3.50	10.00	1.50	.00	.00	.90	1.00	2.00
0	11.00	2500.00	3.50	10.00	1.50	.00	.00	.90	1.00	3.00
0	10.80	2500.00	3.50	10.00	1.50	.00	.00	.90	1.00	3.00
0	5.00	2500.00	5.00	10.00	1.50	1.00	1.00	.90	1.00	2.00
1	9.70	2500.00	5.00	10.00	1.50	.00	1.00	.90	.00	2.00
0	10.00	2500.00	5.00	10.00	1.50	.00	1.00	.90	.00	3.00
0	10.10	2500.00	5.00	10.00	1.50	.00	1.00	.90	.00	3.00
0	2.80	2000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	1.00	2000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	12.20	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	2.00
0	9.40	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
0	10.80	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
0	8.80	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	2.00
1	4.70	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
1	5.80	3000.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
0	4.10	4100.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	4.50	4100.00	6.00	10.00	1.50	1.00	.00	.80	.00	2.00
0	2.60	4100.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
0	2.30	4100.00	6.00	10.00	1.50	1.00	.00	.80	.00	3.00
0	5.20	5000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	2.00
0	1.80	5000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	3.20	5000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	4.00	5000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00
0	2.50	5000.00	6.00	10.00	1.50	1.00	1.00	.80	.00	3.00

HC-130 31 JANUARY 1979 TARGETS:RAFTS

0	3.70	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	2.00
0	4.10	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	4.20	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	1.90	500.00	10.00	30.00	3.00	1.00	1.00	.80	.00	2.00
0	2.90	500.00	10.00	30.00	3.00	1.00	1.00	.80	.00	3.00
0	3.00	500.00	10.00	30.00	3.00	1.00	1.00	.80	.00	3.00
0	.10	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	2.00
0	.70	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	.60	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	2.00	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	2.00
0	.60	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	.40	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	4.20	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	2.00
0	2.40	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	2.20	500.00	10.00	30.00	3.00	.00	1.00	.80	.00	3.00
0	10.00	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	2.00
0	9.60	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	3.00
0	9.70	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	3.00
0	4.90	2500.00	.00	30.00	3.00	1.00	.00	.80	1.00	2.00
0	3.90	2500.00	.00	30.00	3.00	1.00	.00	.80	1.00	3.00
0	3.60	2500.00	.00	30.00	3.00	1.00	.00	.80	1.00	3.00
0	.50	2500.00	.00	30.00	3.00	1.00	1.00	.80	1.00	2.00
0	.50	2500.00	.00	30.00	3.00	1.00	1.00	.80	1.00	3.00
0	.50	2500.00	.00	30.00	3.00	1.00	1.00	.80	1.00	3.00
0	8.40	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	2.00
0	8.40	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	3.00
0	8.80	2500.00	.00	30.00	3.00	.00	1.00	.80	1.00	3.00
0	12.50	2500.00	.00	30.00	3.00	1.00	1.00	.80	1.00	2.00
0	12.50	2500.00	.00	30.00	3.00	1.00	1.00	.80	1.00	3.00

HC130 2 OCT 79 TARGETS:41'UTB

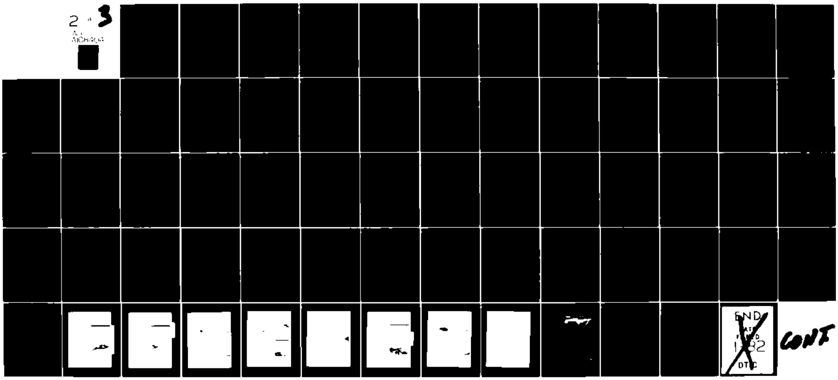
1	28.20	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	2.00
1	34.00	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	2.00
1	8.90	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	14.80	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	21.10	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	28.10	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	34.20	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	6.30	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	12.50	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	18.20	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
1	24.60	5000.00	15.00	7.00	1.00	.00	.00	6.00	.81	.00	2.00
1	30.40	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00
1	35.30	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00
1	5.70	7500.00	15.00	7.00	1.00	.00	1.00	7.00	.81	.00	2.00
1	4.70	7500.00	15.00	7.00	1.00	.00	1.00	7.00	.81	.00	2.00
1	12.30	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00
1	19.60	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00
1	27.40	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00

HC130 2 OCT 79 TARGETS:RAFTS

1	5.30	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	1.00
1	3.70	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	3.00
1	9.90	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	1.00
1	8.30	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	3.00
0	21.90	2000.00	15.00	4.00	.00	.00	1.00	5.00	.81	.00	1.00
0	28.70	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	1.00
0	27.30	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	3.00
0	25.30	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	2.00
0	34.50	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	1.00
0	33.10	2000.00	15.00	4.00	.00	.00	.00	5.00	.81	.00	3.00
1	9.00	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
1	7.90	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
0	16.50	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	1.00
1	14.80	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
1	13.80	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
0	22.20	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	1.00
0	20.90	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
0	20.10	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
0	28.80	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	1.00
0	27.60	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
0	26.70	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
0	33.60	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
0	32.90	3000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	2.00
0	3.90	5000.00	15.00	4.00	.00	.00	1.00	6.00	.81	.00	1.00
1	2.60	5000.00	15.00	4.00	.00	.00	1.00	6.00	.81	.00	3.00

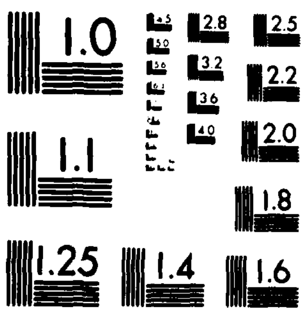
AD-A108 404 ANALYSIS AND TECHNOLOGY INC NORTH STONINGTON CT F/G 17/9
EVALUATION OF TWO AN/APS-94 SIDE-LOOKING AIRBORNE RADAR SYSTEMS--ETC(U)
AUG 81 S R OSMER, N C EDWARDS, G L HOVER DTCG39-80-C-80052
UNCLASSIFIED USCG-D-64-81 NL

2 of 3



CONT

08404



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

0	10.30	5000.00	15.00	4.00	.00	.00	1.00	6.00	.81	.00	1.00
1	8.90	5000.00	15.00	4.00	.00	.00	.00	6.00	.81	.00	3.00
0	15.90	5000.00	15.00	7.00	1.00	.00	.00	6.00	.81	.00	1.00
1	14.70	5000.00	15.00	7.00	1.00	.00	.00	6.00	.81	.00	3.00
0	22.20	5000.00	15.00	7.00	1.00	.00	.00	6.00	.81	.00	1.00
0	28.70	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	1.00
0	27.30	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	35.00	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	1.00
0	33.50	5000.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	4.50	7500.00	15.00	7.00	1.00	.00	1.00	7.00	.81	.00	2.00
0	7.70	7500.00	15.00	7.00	1.00	.00	1.00	7.00	.81	.00	1.00
0	8.90	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	7.80	7500.00	15.00	7.00	1.00	.00	1.00	7.00	.81	.00	2.00
0	14.20	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	20.50	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	27.40	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	26.60	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00
0	33.30	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	3.00
0	32.50	7500.00	15.00	7.00	1.00	.00	.00	7.00	.81	.00	2.00

HC130 3 OCT 79 TARGETS:41'BOATS

0	5.50	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	2.00
1	1.90	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	2.00
1	8.80	3000.00	4.00	16.00	2.00	.00	1.00	5.00	.95	1.00	2.00
1	14.90	3000.00	4.00	16.00	2.00	.00	.00	5.00	.95	1.00	2.00
1	20.90	3000.00	4.00	16.00	2.00	.00	.00	6.00	.95	1.00	2.00
1	27.10	3000.00	4.00	16.00	2.00	.00	.00	6.00	.95	1.00	2.00
1	33.00	3000.00	4.00	16.00	2.00	.00	.00	6.00	.95	1.00	2.00
1	9.00	5000.00	4.00	16.00	2.00	.00	1.00	4.00	1.00	1.00	2.00
1	4.00	5000.00	4.00	16.00	2.00	.00	.00	4.00	1.00	1.00	2.00
1	2.20	5000.00	4.00	16.00	3.00	.00	.00	4.00	1.00	1.00	2.00
1	7.90	5000.00	4.00	16.00	3.00	.00	1.00	5.00	1.00	1.00	2.00
1	13.90	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	2.00
1	20.10	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	2.00
1	6.80	5000.00	3.00	16.00	3.00	.00	1.00	5.00	1.00	1.00	2.00
1	9.20	5000.00	3.00	16.00	3.00	.00	1.00	6.00	1.00	1.00	2.00
1	20.90	5000.00	3.00	16.00	3.00	.00	.00	6.00	1.00	1.00	2.00
1	26.90	5000.00	3.00	16.00	3.00	.00	.00	7.00	1.00	1.00	2.00

HC130 3 OCT 79 TARGETS: 16'BOATS

0	3.80	2000.00	4.00	10.00	1.00	.00	1.00	4.00	1.00	1.00	6.00
0	2.70	2000.00	4.00	10.00	1.00	.00	1.00	4.00	1.00	1.00	6.00
0	13.50	2000.00	4.00	10.00	1.00	.00	1.00	4.00	1.00	1.00	2.00
0	8.60	2000.00	4.00	10.00	1.00	.00	1.00	4.00	1.00	1.00	6.00
0	19.20	2000.00	4.00	10.00	1.00	.00	.00	4.00	1.00	1.00	2.00
0	14.70	2000.00	4.00	10.00	1.00	.00	.00	4.00	1.00	1.00	6.00
0	21.20	2000.00	4.00	10.00	1.00	.00	.00	5.00	1.00	1.00	6.00
0	31.70	2000.00	4.00	10.00	1.00	00	.00	5.00	1.00	1.00	2.00
0	5.20	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	2.00
0	10.00	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	6.00
1	1.10	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	2.00
1	3.60	3000.00	4.00	16.00	2.00	.00	1.00	4.00	.95	1.00	6.00
0	7.00	3000.00	4.00	16.00	2.00	.00	1.00	5.00	.95	1.00	2.00
1	2.40	3000.00	4.00	16.00	2.00	.00	1.00	5.00	.95	1.00	6.00
1	18.20	3000.00	4.00	16.00	2.00	.00	1.00	6.00	.95	1.00	2.00
1	13.60	3000.00	4.00	16.00	2.00	.00	1.00	6.00	.95	1.00	6.00
0	25.60	3000.00	4.00	16.00	2.00	.00	.00	6.00	.95	1.00	2.00
0	20.90	3000.00	4.00	16.00	2.00	.00	.00	6.00	1.00	1.00	6.00
0	27.30	3000.00	4.00	16.00	2.00	.00	.00	6.00	1.00	1.00	6.00
0	5.00	5000.00	4.00	16.00	2.00	.00	1.00	4.00	1.00	1.00	2.00
0	9.60	5000.00	4.00	16.00	2.00	.00	1.00	4.00	1.00	1.00	6.00
0	13.10	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	2.00
0	18.80	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	2.00
1	14.20	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	6.00
0	21.80	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	6.00
0	21.50	5000.00	4.00	16.00	3.00	.00	.00	5.00	1.00	1.00	8.00
0	31.70	5000.00	4.00	16.00	3.00	.00	1.00	6.00	1.00	1.00	2.00
0	27.20	5000.00	4.00	16.00	3.00	.00	.00	6.00	1.00	1.00	6.00
0	26.90	5000.00	4.00	16.00	3.00	.00	1.00	6.00	1.00	1.00	8.00
0	10.90	5000.00	3.00	16.00	3.00	.00	1.00	5.00	1.00	1.00	8.00
0	4.20	5000.00	3.00	16.00	3.00	.00	1.00	5.00	1.00	1.00	8.00
0	6.60	5000.00	3.00	16.00	3.00	.00	.00	5.00	1.00	1.00	2.00
0	18.80	5000.00	3.00	16.00	3.00	.00	.00	6.00	1.00	1.00	2.00
0	13.80	5000.00	3.00	16.00	3.00	.00	.00	6.00	1.00	1.00	8.00
0	25.60	5000.00	3.00	16.00	3.00	.00	.00	6.00	1.00	1.00	2.00
0	20.70	5000.00	3.00	16.00	3.00	.00	.00	6.00	1.00	1.00	8.00
0	31.80	5000.00	3.00	16.00	3.00	.00	1.00	7.00	1.00	1.00	2.00
0	27.30	5000.00	3.00	16.00	3.00	.00	1.00	7.00	1.00	1.00	6.00
0	26.70	5000.00	3.00	16.00	3.00	.00	1.00	7.00	1.00	1.00	8.00

HC130 4 OCT 79 TARGETS:CUTTERS (82'/95')

1	4.20	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	5.00
1	2.00	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	5.00
1	7.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	5.00
1	13.80	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	5.00
1	19.20	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	5.00
1	25.60	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	5.00
1	29.40	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	5.00
1	10.90	3000.00	6.00	8.00	3.00	.00	.00	4.00	.84	.00	5.00
1	5.30	3000.00	6.00	8.00	3.00	.00	.00	4.00	.84	.00	5.00
1	4.50	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	10.50	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	16.60	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	5.00
1	25.00	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	5.00
1	30.00	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	5.00
1	11.20	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	5.10	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	1.50	5000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	5.00
1	7.30	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	13.20	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	5.00
1	29.20	5000.00	6.00	5.00	3.00	.00	.00	7.00	.84	.00	5.00
1	15.90	5000.00	6.00	5.00	3.00	.00	.00	6.00	.84	.00	5.00
1	10.50	5000.00	6.00	5.00	3.00	.00	.00	6.00	.84	.00	5.00
1	3.80	5000.00	6.00	5.00	3.00	.00	1.00	6.00	.84	.00	5.00
1	11.80	5000.00	6.00	5.00	3.00	.00	.00	6.00	.84	.00	5.00
1	9.90	5000.00	6.00	5.00	3.00	.00	.00	5.00	.84	.00	5.00
1	7.80	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00
1	7.80	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00
1	10.50	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	5.00
1	12.90	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	5.00
1	6.10	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	5.00
1	6.90	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00
1	11.90	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00
1	11.30	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00
1	11.10	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	5.00

HL130 4 OCT 79 TARGETS:41'/44' BOATS

1	10.60	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	2.00
1	8.80	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	3.00
1	2.30	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	2.00
1	6.10	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
1	9.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	2.00
1	13.70	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
1	16.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	2.00
1	20.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
1	24.50	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	2.00
1	29.20	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	3.00
1	31.00	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	2.00
1	35.70	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	3.00
1	5.30	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	2.00
1	8.20	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	3.00
1	6.80	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	6.60	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	12.80	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	13.60	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	18.70	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	2.00
1	21.20	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	3.00
1	25.40	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	2.00
1	29.00	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	3.00
1	31.00	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	2.00
1	5.80	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	10.40	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	9.70	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	6.60	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	1.60	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	12.50	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	8.00	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	18.50	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	15.50	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	25.20	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	23.00	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	3.00
1	30.20	5000.00	6.00	5.00	3.00	.00	.00	7.00	.80	.00	3.00
1	12.80	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	10.20	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	3.00
1	7.40	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	8.80	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	15.30	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	3.00
1	9.80	5000.00	6.00	5.00	3.00	.00	.00	5.00	.80	.00	3.00
1	11.80	5000.00	6.00	5.00	3.00	.00	.00	5.00	.80	.00	2.00
1	4.10	5000.00	6.00	5.00	3.00	.00	.00	5.00	.80	.00	3.00
1	7.10	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	11.10	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	15.40	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	13.20	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	2.00
1	14.30	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	3.00
1	7.90	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	2.00
1	10.40	3000.00	6.00	4.00	2.00	.00	.00	4.00	.81	.00	3.00

1	13.60	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	9.20	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	12.80	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	6.40	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	7.90	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	9.40	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00

HC130 4 OCT 79 TARGETS: 16'BOATS

0	3.60	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	3.00
0	5.50	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	2.00
1	2.50	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	3.00
1	4.50	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	6.00
0	3.20	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	1.00
0	4.70	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	8.00
1	8.60	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
0	6.60	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	2.00
0	10.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	6.00
1	3.20	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	1.00
1	14.60	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
0	12.30	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	2.00
0	16.90	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	6.00
0	9.10	2000.00	6.00	7.00	3.00	.00	1.00	4.00	.89	.00	1.00
0	19.80	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	3.00
0	18.50	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	2.00
1	22.20	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	6.00
0	15.00	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	1.00
0	13.60	2000.00	6.00	7.00	3.00	.00	.00	4.00	.89	.00	8.00
0	26.50	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	3.00
0	29.20	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	6.00
0	21.60	2000.00	6.00	7.00	3.00	.00	.00	5.00	.89	.00	1.00
0	20.40	2000.00	6.00	7.00	3.00	.00	1.00	5.00	.89	.00	8.00
0	33.50	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	3.00
0	35.40	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	6.00
0	27.70	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	1.00
0	26.40	2000.00	6.00	9.00	3.00	.00	.00	5.00	.89	.00	8.00
0	3.80	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	3.00
0	5.90	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	2.00
0	1.60	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	6.00
0	10.70	3000.00	6.00	8.00	3.00	.00	1.00	4.00	.84	.00	8.00
1	2.60	3000.00	6.00	8.00	3.00	.00	.00	4.00	.84	.00	3.00
1	8.60	3000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	3.00
1	6.40	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
0	10.60	3000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	6.00
1	3.00	3000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	1.00
0	1.50	3000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	8.00
1	14.60	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
0	12.50	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	17.00	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	6.00
1	9.20	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	1.00

0	7.50	3000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	8.00
0	20.70	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	5.00
0	22.90	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	6.00
1	15.10	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	1.00
1	13.60	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	8.00
0	27.50	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	3.00
0	25.40	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	2.00
0	29.80	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	6.00
0	21.90	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	1.00
0	20.40	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	6.00
0	35.20	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	6.00
0	27.50	3000.00	6.00	8.00	3.00	.00	.00	6.00	.84	.00	1.00
1	4.00	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
0	6.40	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	9.70	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	1.00
1	11.20	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	8.00
1	2.20	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
0	3.90	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	6.00
1	3.80	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	1.00
1	5.50	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	8.00
0	5.70	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
1	2.60	5000.00	6.00	8.00	3.00	.00	1.00	5.00	.84	.00	1.00
1	14.20	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	3.00
1	15.80	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	6.00
0	6.90	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	8.00
1	17.70	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	2.00
0	14.40	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	1.00
0	13.00	5000.00	6.00	8.00	3.00	.00	.00	5.00	.84	.00	8.00
0	27.40	5000.00	6.00	8.00	3.00	.00	.00	6.00	.80	.00	3.00
0	29.00	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	6.00
0	21.50	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	1.00
0	20.00	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	8.00
0	32.70	5000.00	6.00	5.00	3.00	.00	1.00	7.00	.80	.00	3.00
0	30.40	5000.00	6.00	5.00	3.00	.00	.00	7.00	.80	.00	2.00
0	34.70	5000.00	6.00	5.00	3.00	.00	.00	7.00	.80	.00	6.00
0	26.90	5000.00	6.00	5.00	3.00	.00	1.00	7.00	.80	.00	1.00
0	25.20	5000.00	6.00	5.00	3.00	.00	1.00	7.00	.80	.00	8.00
1	6.90	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	3.00
1	10.50	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	9.20	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	1.00
1	9.10	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	6.00
0	15.60	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	8.00
0	15.70	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	3.00
0	9.20	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	2.00
1	9.50	5000.00	6.00	5.00	3.00	.00	.00	6.00	.80	.00	1.00
0	10.90	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	1.00
0	15.80	5000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	6.20	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	8.60	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	1.00
1	4.70	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	3.00
1	10.90	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	2.00
1	9.20	3000.00	6.00	4.00	2.00	.00	.00	5.00	.81	.00	6.00

HC130 16 OCT 79 82'/95'CUTTERS

1	5.60	2000.00	15.00	6.00	.00	.00	.00	5.00	.54	.00	5.00
1	6.80	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	5.00
1	12.70	2000.00	15.00	6.00	.00	.00	.00	4.00	.54	.00	5.00
1	18.60	2000.00	15.00	6.00	.00	.00	.00	4.00	.54	.00	5.00
1	25.20	2000.00	15.00	6.00	.00	.00	.00	5.00	.54	.00	5.00
1	31.20	2000.00	15.00	6.00	.00	.00	.00	5.00	.54	.00	5.00
1	5.50	3000.00	15.00	9.00	1.00	.00	1.00	5.00	.57	.00	5.00
1	6.80	3000.00	15.00	9.00	1.00	.00	.00	5.00	.57	.00	5.00
1	12.80	3000.00	15.00	9.00	1.00	.00	.00	5.00	.57	.00	5.00
1	18.70	3000.00	15.00	9.00	1.00	.00	.00	5.00	.57	.00	5.00
1	25.60	3000.00	15.00	9.00	1.00	.00	.00	6.00	.57	.00	5.00
1	31.50	3000.00	15.00	9.00	1.00	.00	.00	6.00	.57	.00	5.00

HC130 16 OCT 79 TARGETS:RAFTS

0	3.20	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	3.00
0	4.70	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	2.00
1	6.90	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	3.00
0	2.90	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	3.00
0	9.20	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	3.00
0	7.40	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	2.00
0	3.70	2000.00	15.00	6.00	.00	.00	1.00	5.00	.54	.00	3.00
1	13.40	2000.00	15.00	6.00	.00	.00	.00	4.00	.54	.00	2.00
0	21.40	2000.00	15.00	6.00	.00	.00	.00	4.00	.54	.00	3.00
0	19.40	2000.00	15.00	6.00	.00	.00	.00	4.00	.54	.00	2.00
0	26.30	2000.00	15.00	6.00	.00	.00	.00	5.00	.54	.00	2.00
0	32.40	2000.00	15.00	6.00	.00	.00	.00	5.00	.54	.00	2.00
1	3.50	3000.00	15.00	9.00	1.00	.00	.00	5.00	.57	.00	3.00
0	2.20	3000.00	15.00	9.00	1.00	.00	1.00	5.00	.57	.00	2.00
1	2.20	3000.00	15.00	9.00	1.00	.00	1.00	5.00	.57	.00	3.00
1	8.20	3000.00	15.00	9.00	1.00	.00	.00	5.00	.57	.00	2.00
0	10.00	3000.00	15.00	9.00	1.00	.00	1.00	5.00	.57	.00	3.00
0	34.40	3000.00	15.00	9.00	1.00	.00	.00	6.00	.57	.00	3.00
0	32.80	3000.00	15.00	9.00	1.00	.00	.00	6.00	.57	.00	2.00
0	28.60	3000.00	15.00	9.00	1.00	.00	.00	6.00	.57	.00	3.00

HC130 17 OCT 79 TARGETS:41'/44'BOATS

1	6.60	1000.00	13.00	14.00	2.00	.00	1.00	1.00	.82	.00	2.00
1	5.80	1000.00	13.00	14.00	2.00	.00	1.00	1.00	.82	.00	2.00
1	4.90	1000.00	13.00	14.00	2.00	.00	1.00	1.00	.82	.00	2.00
1	14.70	2000.00	14.00	16.00	3.00	.00	.00	3.00	.82	.00	2.00
1	8.50	2000.00	14.00	17.00	3.00	.00	.00	2.00	.82	.00	2.00
1	14.40	2000.00	14.00	17.00	3.00	.00	.00	2.00	.82	.00	2.00
1	21.40	2000.00	14.00	17.00	3.00	.00	.00	3.00	.82	.00	2.00
1	27.60	2000.00	14.00	17.00	3.00	.00	.00	4.00	.82	.00	2.00
1	3.80	3100.00	14.00	15.00	3.00	.00	1.00	2.00	.78	.00	2.00
1	1.30	3000.00	14.00	15.00	3.00	.00	.00	3.00	.78	.00	2.00
1	6.60	3000.00	14.00	15.00	3.00	.00	.00	3.00	.78	.00	2.00
1	12.00	3000.00	14.00	15.00	3.00	.00	.00	3.00	.78	.00	2.00
1	17.00	3000.00	14.00	15.00	3.00	.00	.00	4.00	.78	.00	2.00
1	23.40	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	2.00
1	28.80	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	2.00

HC130 17 OCT 79 TARGETS:RAFTS

0	5.80	1000.00	13.00	14.00	2.00	.00	.00	1.00	.82	.00	2.00
0	3.20	1000.00	13.00	14.00	2.00	.00	1.00	1.00	.82	.00	2.00
0	7.80	1000.00	13.00	14.00	2.00	.00	.00	1.00	.82	.00	2.00
0	.70	1000.00	13.00	14.00	2.00	.00	1.00	1.00	.82	.00	2.00
0	1.30	2000.00	13.00	16.00	3.00	.00	1.00	3.00	.82	.00	2.00
0	9.70	2000.00	13.00	16.00	3.00	.00	1.00	3.00	.82	.00	2.00
1	4.70	2000.00	13.00	16.00	3.00	.00	1.00	2.00	.82	.00	2.00
0	3.70	2000.00	13.00	16.00	3.00	.00	1.00	2.00	.82	.00	2.00
0	10.80	2000.00	13.00	16.00	3.00	.00	.00	2.00	.82	.00	2.00
0	2.50	2000.00	13.00	16.00	3.00	.00	1.00	2.00	.82	.00	2.00
0	16.80	2000.00	13.00	16.00	3.00	.00	.00	2.00	.82	.00	2.00
0	22.70	2000.00	14.00	17.00	3.00	.00	.00	2.00	.82	.00	2.00
0	29.60	2000.00	14.00	17.00	3.00	.00	.00	3.00	.82	.00	2.00
0	35.40	2000.00	14.00	17.00	3.00	.00	.00	4.00	.82	.00	2.00
0	.90	3000.00	14.00	15.00	3.00	.00	1.00	2.00	.78	.00	2.00
0	7.30	3000.00	14.00	15.00	3.00	.00	1.00	3.00	.78	.00	2.00
0	1.30	3000.00	14.00	15.00	3.00	.00	1.00	3.00	.78	.00	2.00
0	17.00	3000.00	14.00	15.00	3.00	.00	.00	3.00	.78	.00	2.00
0	10.60	3000.00	14.00	15.00	3.00	.00	.00	3.00	.78	.00	2.00
0	25.00	3000.00	14.00	15.00	3.00	.00	.00	4.00	.78	.00	2.00
0	29.90	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	2.00
0	36.00	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	2.00

HC130 17 OCT 79 TARGETS: 16'BOATS

0	15.70	2000.00	14.00	16.00	3.00	.00	1.00	3.00	.82	.00	5.00
0	9.70	2000.00	14.00	16.00	3.00	.00	1.00	2.00	.82	.00	5.00
0	8.80	2000.00	14.00	16.00	3.00	.00	1.00	2.00	.82	.00	8.00
0	2.60	2000.00	14.00	17.00	3.00	.00	1.00	2.00	.82	.00	5.00
0	8.40	2000.00	14.00	17.00	3.00	.00	.00	2.00	.82	.00	5.00
0	9.20	2000.00	14.00	17.00	3.00	.00	.00	2.00	.82	.00	8.00
0	15.30	2000.00	14.00	17.00	3.00	.00	.00	3.00	.82	.00	5.00
0	16.20	2000.00	14.00	17.00	3.00	.00	.00	3.00	.82	.00	8.00
0	20.30	2000.00	14.00	17.00	3.00	.00	.00	4.00	.82	.00	5.00
0	21.90	2000.00	14.00	17.00	3.00	.00	.00	4.00	.82	.00	8.00
0	15.00	3000.00	14.00	15.00	3.00	.00	.00	2.00	.78	.00	5.00
1	14.80	3000.00	14.00	15.00	3.00	.00	1.00	2.00	.78	.00	8.00
0	9.20	3000.00	14.00	15.00	3.00	.00	1.00	3.00	.78	.00	5.00
0	3.60	3000.00	14.00	15.00	3.00	.00	1.00	3.00	.78	.00	8.00
0	2.40	3000.00	14.00	15.00	3.00	.00	1.00	3.00	.78	.00	5.00
0	9.00	3000.00	14.00	15.00	3.00	.00	1.00	4.00	.78	.00	5.00
0	9.50	3000.00	14.00	15.00	3.00	.00	1.00	4.00	.78	.00	8.00
0	15.60	3000.00	14.00	15.00	3.00	.00	1.00	5.00	.78	.00	5.00
0	16.40	3000.00	14.00	15.00	3.00	.00	1.00	5.00	.78	.00	8.00
0	21.70	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	5.00
0	22.60	3000.00	14.00	15.00	3.00	.00	.00	5.00	.78	.00	8.00

HC130 18 OCT 79 TARGETS:82'/95'CUTTERS

1	10.50	2000.00	8.00	5.00	.00	.00	.00	2.00	.85	.00	5.00
1	9.40	2000.00	8.00	5.00	.00	.00	.00	2.00	.85	.00	4.00
1	3.00	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	5.00
1	2.30	2000.00	8.00	5.00	.00	.00	1.00	3.00	.85	.00	4.00
1	4.10	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	5.00
1	6.40	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	4.00
1	12.20	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	5.00
1	12.50	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	4.00
1	14.60	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	5.00
1	18.50	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	4.00
1	26.90	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	5.00
1	25.20	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	4.00
1	32.80	2000.00	8.00	5.00	.00	.00	.00	4.00	.94	.00	5.00
1	31.40	2000.00	8.00	5.00	.00	.00	.00	4.00	.94	.00	4.00
1	3.10	3000.00	8.00	5.00	.00	.00	.00	4.00	.86	.00	5.00
1	1.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	2.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	5.00
1	4.90	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	9.60	3000.00	8.00	5.00	.00	.00	.00	4.00	.86	.00	5.00
1	10.70	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	16.90	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	5.00
1	16.30	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	4.00
1	23.50	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	5.00
1	20.90	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	4.00
1	25.80	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	4.00
1	35.00	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	5.00
1	31.70	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	4.00
1	4.50	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	5.00
1	1.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	5.10	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	5.00
1	4.10	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	9.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	5.00
1	14.70	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	13.60	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	5.00
1	14.50	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	1.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	4.00
1	1.30	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	5.00
1	7.30	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	5.00
1	15.30	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	4.00
1	13.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	5.00
1	9.00	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	4.00

HC130 18 OCT 79 TARGETS:41'/44'BOATS

1	2.00	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
1	5.60	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
1	8.50	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
1	13.80	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
1	20.80	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
1	26.80	2000.00	8.00	5.00	.00	.00	.00	4.00	.94	.00	3.00
1	2.60	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	2.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	7.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	12.20	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
1	17.00	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
1	22.80	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
1	27.70	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
1	1.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	7.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	14.60	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	4.90	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	3.00
1	11.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	3.00
1	11.80	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	3.00

HC130 18 OCT 79 TARGETS: 16'BOAT

1	4.00	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	8.00
0	9.20	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	8.00
0	15.90	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	8.00
0	22.30	2000.00	8.00	5.00	.00	.00	.00	4.00	.94	.00	8.00
1	8.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	8.00
1	9.80	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	8.00
0	25.90	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	8.00

HC130 18 OCT 79 TARGETS:NAFIS

1	8.80	2000.00	8.00	5.00	.00	.00	.00	2.00	.85	.00	3.00
1	9.60	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
0	15.50	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
0	22.30	2000.00	8.00	5.00	.00	.00	.00	3.00	.85	.00	3.00
0	28.40	2000.00	8.00	5.00	.00	.00	.00	4.00	.94	.00	3.00
1	32.80	2000.00	8.00	5.00	.00	.00	.00	4.00	1.00	.00	1.00
1	8.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	2.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	5.60	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	1.00
1	2.50	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	1.00
1	3.90	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	3.00
1	11.40	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	1.00
1	10.00	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
1	17.60	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	1.00
0	15.20	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	1.00
1	15.70	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
0	20.80	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	1.00
0	27.70	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	1.00
0	28.70	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	3.00
0	34.00	3000.00	8.00	5.00	.00	.00	.00	5.00	.91	.00	1.00
1	6.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	1.50	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
0	7.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	2.00
1	8.00	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	3.00
1	15.70	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	1.00
1	6.10	3000.00	8.00	5.00	.00	.00	.00	4.00	.88	.00	1.00
1	15.50	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	1.00
1	12.20	3000.00	8.00	5.00	.00	.00	.00	4.00	.91	.00	1.00

HC-130 12 MAY 80 CUTTERS & BOATS ADSS/SLAR

1	0	3.70	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	1.00
1	0	6.80	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	4.00
1	0	6.90	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	2.00
1	0	9.60	2000.00	1.00	7.00	1.00	.00	.00	100.00	1.00	1.00
1	0	20.80	2000.00	1.00	5.00	1.00	.00	.00	100.00	1.00	4.00
0	0	21.70	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	4.00
1	0	7.70	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	4.00
1	0	7.80	3000.00	1.50	3.00	.00	1.00	.00	100.00	1.00	1.00
1	0	1.00	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	4.00
1	0	3.30	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	1.00
1	0	3.50	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	1.00
1	0	3.50	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	4.00
1	0	1.80	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	1.00
1	0	6.20	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
1	0	1.10	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	4.00
1	0	6.50	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	4.00
1	0	15.00	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	1.00
1	0	15.00	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	4.00
1	1	.90	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	4.00
1	1	8.10	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	1.00
1	1	6.60	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	4.00
1	1	13.20	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	4.00
1	1	20.00	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	1.00
1	1	19.00	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	4.00
1	1	25.60	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	22.50	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	1.00
1	1	19.70	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
1	1	21.50	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	21.80	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	4.00
1	1	16.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	1.00
1	1	15.00	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	16.40	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	4.00
1	1	14.20	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	4.00
1	1	9.70	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	1.00
1	1	9.00	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
1	1	9.30	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
1	1	5.40	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	1.00
1	1	4.90	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	4.00
1	1	3.40	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	5.60	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	1.90	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	3.70	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	.60	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	1.00
1	1	2.10	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
1	1	1.80	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
1	1	.90	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	4.00
1	1	8.50	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	4.00
1	1	4.00	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	4.00
1	1	7.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	1.00
1	1	6.10	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00

1	1	5.50	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	4.00
1	1	2.30	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	4.00
1	1	12.50	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
1	1	9.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	4.00
1	1	10.90	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	4.00
1	1	18.10	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
1	1	14.20	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	4.00
1	1	21.40	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	1.00

HC-130 12 MAY 80 SMALL BOATS ADSS/SLAR

1	0	3.80	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	10.00
1	0	4.80	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	2.00
1	0	3.20	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	6.00
0	0	25.00	2000.00	1.00	5.00	1.00	.00	.00	100.00	1.00	2.00
0	0	23.30	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	21.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	10.00
0	0	20.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	6.00
0	0	10.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	9.40	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	10.00
0	0	8.40	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	6.00
1	0	1.90	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	11.00
1	0	1.90	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	2.00
1	0	2.90	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	10.00
1	0	4.00	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	6.00
0	0	1.20	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	11.00
1	0	1.10	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	2.10	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	10.00
0	0	3.20	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	6.00
0	0	4.80	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	5.00
0	0	4.80	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	3.70	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	10.00
0	0	2.70	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	6.00
1	0	11.20	5000.00	1.50	3.00	1.00	.00	.00	94.00	.00	2.00
0	0	10.30	5000.00	1.50	3.00	1.00	.00	.00	94.00	.00	10.00
0	0	9.20	5000.00	1.50	3.00	1.00	.00	.00	94.00	.00	6.00
0	0	16.30	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	11.00
0	0	16.30	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	15.40	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	10.00
0	0	14.50	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	6.00
0	1	.20	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	10.00
0	1	.20	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	6.00
0	1	1.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
1	1	6.10	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	11.00
1	1	4.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
1	1	5.20	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	10.00
1	1	5.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	6.00
0	1	8.00	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	6.00
0	1	12.60	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	11.00
0	1	10.70	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	2.00
1	1	11.50	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	10.00
1	1	11.90	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	6.00

0	1	18.20	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	11.00
0	1	17.30	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	2.00
0	1	17.30	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	10.00
1	1	17.00	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	6.00
0	1	25.20	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	11.00
0	1	23.40	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	2.00
0	1	23.50	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	10.00
0	1	23.30	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	6.00
0	1	26.30	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	26.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	6.00
0	1	21.80	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	11.00
0	1	20.00	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	20.90	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	10.00
0	1	21.00	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	6.00
0	1	16.10	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	11.00
1	1	13.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	14.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	10.00
0	1	14.90	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	6.00
0	1	1.50	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	.90	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	10.00
0	1	.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	6.00
0	1	5.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	11.00
0	1	4.50	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	5.10	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	10.00
0	1	5.10	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	6.00
1	1	8.40	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	6.00
0	1	12.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	11.00
0	1	10.80	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	11.40	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	10.00
0	1	11.40	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	6.00
0	1	17.00	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	10.00
1	1	16.20	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	6.00
0	1	9.80	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	11.00
1	1	8.00	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
1	1	12.20	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	6.00
1	1	4.00	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	11.00
0	1	2.70	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	2.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	10.00
0	1	2.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	6.00
1	1	6.20	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	6.00
1	1	4.30	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	11.00
1	1	5.30	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	10.00
1	1	6.30	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	6.00
1	1	2.10	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	11.00
0	1	4.30	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	3.30	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	10.00
0	1	3.10	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	6.00

HC-130 12 MAY 80 RAFTS AOSS/SLAR

0	0	4.70	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	7.00	2000.00	1.00	7.00	1.00	1.00	.00	100.00	1.00	3.00
0	0	24.80	2000.00	1.00	5.00	1.00	.00	.00	100.00	1.00	2.00
0	0	25.00	2000.00	1.00	5.00	1.00	.00	.00	100.00	1.00	3.00
0	0	22.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	22.30	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	25.30	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	3.00
0	0	13.00	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	3.00
0	0	9.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
0	0	10.80	3000.00	1.50	3.00	1.00	1.00	.00	100.00	1.00	2.00
1	0	2.00	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	2.00
0	0	3.20	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	3.00
1	0	3.00	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	2.00
0	0	4.10	3000.00	1.50	3.00	1.00	.00	.00	100.00	1.00	2.00
0	0	1.30	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	2.20	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	3.00
0	0	2.10	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	3.00	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	4.60	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	3.70	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	3.00
0	0	3.60	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	2.80	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	6.70	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	3.00
0	0	11.00	5000.00	1.50	3.00	1.00	.00	.00	94.00	.00	2.00
0	0	10.00	5000.00	1.50	3.00	1.00	.00	.00	94.00	.00	2.00
0	0	16.10	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	15.40	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	3.00
0	0	15.20	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	0	14.50	5000.00	1.50	3.00	1.00	1.00	.00	94.00	.00	2.00
0	1	.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
0	1	1.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
0	1	.90	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	3.00
1	1	5.30	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
1	1	6.10	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	3.00
1	1	4.20	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
1	1	6.10	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
1	1	4.10	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	3.00
0	1	8.00	2000.00	1.50	6.00	1.00	1.00	.00	94.00	.00	2.00
0	1	11.70	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	2.00
0	1	12.50	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	3.00
0	1	10.50	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	2.00
0	1	12.50	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	2.00
1	1	10.50	2000.00	1.50	6.00	1.00	.00	.00	94.00	.00	3.00
0	1	17.30	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	2.00
0	1	18.10	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	3.00
0	1	16.20	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	2.00
0	1	18.00	2000.00	1.50	6.50	1.00	1.00	.00	85.00	.00	2.00
0	1	20.10	2000.00	1.50	6.50	1.00	1.00	.00	.85	.00	2.00
0	1	24.30	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	2.00
0	1	24.30	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	3.00
0	1	22.30	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	2.00

0	1	24.10	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	2.00
0	1	23.40	2000.00	1.50	6.50	1.00	.00	.00	85.00	.00	3.00
0	1	26.10	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	26.10	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	3.00
0	1	20.90	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	21.70	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	3.00
0	1	19.80	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	21.80	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	23.90	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	15.20	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	15.60	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	3.00
0	1	13.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	15.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	17.90	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	8.90	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	2.00
0	1	8.10	3000.00	1.50	5.00	1.00	1.00	.00	79.00	.00	3.00
0	1	3.60	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	3.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	3.00
1	1	2.00	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	3.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
0	1	2.40	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	3.00
0	1	5.80	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	4.40	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	5.20	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	3.00
1	1	6.10	3000.00	1.50	5.00	1.00	.00	.00	79.00	.00	2.00
1	1	3.10	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
1	1	2.10	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	3.00
0	1	4.40	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
1	1	2.00	3000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	.70	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	1.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	1.50	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	3.00
0	1	5.00	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	5.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	3.00
0	1	3.90	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	5.90	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	3.40	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	3.00
0	1	7.90	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	11.30	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	12.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	3.00
0	1	10.30	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	12.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	10.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	3.00
0	1	14.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	2.00
0	1	17.80	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	3.00
1	1	14.60	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	18.30	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	20.30	5000.00	1.50	3.00	.50	1.00	.00	80.00	.00	2.00
0	1	22.20	5000.00	1.50	3.00	.50	.00	.00	80.00	.00	3.00

HC-130 12 MAY 80 CUTTERBOATS SLAR/RIP

1	0	3.98	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	4.00
1	0	3.76	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	1.00
1	0	1.55	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	2.02	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	4.00
1	0	4.09	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	5.54	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	1.00
1	0	9.58	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	9.32	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	6.88	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00
1	0	4.39	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00
1	0	13.70	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	1.00
1	0	15.46	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	17.68	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	12.89	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00
1	0	10.33	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00
1	0	20.92	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	1.00
1	0	21.94	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	23.83	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	19.04	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00
1	0	16.47	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	4.00

HC-130 12 MAY 80 SMALL BOATS SLAR/RIP

1	0	1.43	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	2.40	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	10.00
1	0	3.39	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	6.00
1	0	4.62	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	3.55	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	10.00
1	0	2.54	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	6.00
1	0	9.45	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	7.29	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	6.00

HC-130 12 MAY 80 RAFTS SLAR/RIP

1	0	1.59	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	2.52	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	4.44	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	3.47	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	2.75	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	2.00
1	0	6.75	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	3.00
1	0	13.00	2000.00	1.50	6.50	.50	.00	.00	2.00	94.00	.00	3.00
1	0	9.25	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	7.49	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	2.00
1	0	11.61	2000.00	1.50	5.00	1.00	.00	.00	2.00	79.00	.00	3.00

HC-130 14 MAY 80 CUTTERS & BOATS AOSS/SLAR

1	0	1.50	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	1.00
1	0	4.30	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	1.00
1	0	10.50	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	1.00
1	0	16.40	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	1.00
1	0	20.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	1.00
1	0	22.80	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	1.00
1	0	16.40	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	1.00
1	0	10.60	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	1.00
1	0	8.40	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	1.00
1	0	1.60	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	1.00
1	0	1.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	1.00
1	0	4.30	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	1.00
1	0	10.90	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	1.00
1	0	17.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	1.00
0	0	23.60	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	1.00
1	1	5.30	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	1.00
1	1	17.00	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	1.00

HC-130 14 MAY 80 SMALL BOATS AOSS/SLAR

1	0	1.00	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	12.00
1	0	2.00	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	2.00	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	13.00
1	0	5.80	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	11.00
1	0	5.90	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	6.00
1	0	4.80	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	12.00
1	0	3.80	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	3.80	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	13.00
0	0	9.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	13.00
0	0	17.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	11.00
0	0	17.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	6.00
0	0	16.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	12.00
0	0	15.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	2.00
0	0	15.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	13.00
0	0	23.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	11.00
0	0	23.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	6.00
0	0	22.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	12.00
0	0	21.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	2.00
0	0	21.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	13.00
0	0	24.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	11.00
0	0	24.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	6.00
0	0	23.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	12.00
0	0	22.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	2.00
0	0	22.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	13.00
0	0	18.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	11.00
0	0	18.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	6.00
0	0	17.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	12.00
0	0	16.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
0	0	16.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	13.00
0	0	12.20	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	11.00

0	0	12.20	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	6.00
1	0	11.20	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	12.00
0	0	10.10	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	2.00
0	0	4.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	13.00
0	0	12.50	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	11.00
0	0	12.50	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	6.00
1	0	11.50	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	12.00
0	0	10.40	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
1	0	10.40	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	13.00
0	0	18.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	11.00
0	0	18.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	6.00
0	0	17.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	12.00
0	0	16.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	2.00
0	0	16.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	13.00
0	0	24.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	11.00
0	0	24.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	6.00
0	0	23.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	12.00
0	0	22.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	22.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	13.00
0	1	.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	11.00
0	1	1.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	6.00
0	1	1.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	12.00
0	1	.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
1	1	2.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	13.00
0	1	4.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	11.00
0	1	3.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	6.00
1	1	3.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	12.00
0	1	4.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
1	1	2.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	13.00
1	1	9.90	5500.00	15.00	17.00	2.00	.00	.00	59.00	.00	12.00
0	1	10.90	5500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	9.20	5500.00	15.00	17.00	2.00	.00	.00	59.00	.00	13.00
1	1	16.00	5500.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	12.00
0	1	17.00	5500.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
0	1	15.00	5500.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	13.00
1	1	23.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	11.00
0	1	22.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	6.00
1	1	22.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	12.00
0	1	23.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	21.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	13.00
0	1	23.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	11.00
0	1	22.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	6.00
0	1	22.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	12.00
0	1	23.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	21.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	13.00
0	1	17.40	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	15.40	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	13.00
1	1	11.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	11.00
1	1	10.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	6.00
1	1	10.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	12.00
0	1	11.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	9.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	13.00

0	1	5.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	11.00
0	1	4.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	6.00
1	1	4.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	12.00
1	1	5.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	3.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	13.00
1	1	1.60	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	12.00
1	1	2.70	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	13.00
1	1	4.20	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	11.00
1	1	5.10	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	6.00
1	1	5.20	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	12.00
1	1	4.20	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
1	1	6.20	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	13.00
1	1	1.60	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	11.00
0	1	.60	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	6.00
1	1	.60	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	12.00
1	1	1.40	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
1	1	7.30	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	11.00
0	1	6.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	6.00
1	1	6.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	12.00
0	1	7.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
1	1	5.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	13.00
0	1	12.80	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	12.00
0	1	13.80	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
1	1	11.80	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	13.00
0	1	19.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	11.00
0	1	18.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	6.00
0	1	18.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	12.00
0	1	19.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	17.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	13.00
0	1	10.10	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	13.00
0	0	6.00	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	11.00
0	0	6.00	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	6.00
1	0	5.00	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	12.00
0	0	4.10	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	2.00
1	0	4.10	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	13.00
1	0	.80	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	12.00
1	0	1.70	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
1	0	1.80	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	13.00
0	0	.40	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	12.00
0	0	1.40	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	1.40	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	13.00
0	0	6.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	11.00
0	0	6.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	6.00
0	0	5.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	12.00
0	0	4.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00

HC-130 14 MAY 80 RAFTS AOSS/SLAR

0	1	2.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
0	1	.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
1	1	1.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
0	1	2.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
0	1	4.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
0	1	3.90	5500.00	15.00	17.00	2.00	1.00	.00	59.00	.00	2.00
0	1	10.90	5500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	9.90	5500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	16.80	5500.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	16.00	5500.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
0	1	21.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	23.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	22.00	4500.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	21.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	23.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	22.50	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
0	1	16.80	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	9.80	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	11.20	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	10.30	3000.00	15.00	17.00	2.00	.00	.00	59.00	.00	2.00
1	1	3.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
0	1	5.10	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	4.00	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	1.70	3000.00	15.00	17.00	2.00	1.00	1.00	59.00	.00	2.00
1	1	6.10	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
1	1	4.20	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
1	1	5.10	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
0	1	1.60	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
0	1	.60	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
0	1	5.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	7.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	6.60	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	13.80	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
0	1	12.80	2000.00	15.00	7.50	2.00	1.00	1.00	59.00	.00	2.00
0	1	17.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	19.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	1	18.80	2000.00	15.00	7.50	2.00	.00	.00	59.00	.00	2.00
0	0	1.00	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	2.00	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	5.90	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	4.80	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
1	0	3.90	2000.00	12.00	9.50	1.00	1.00	1.00	79.00	.00	2.00
0	0	11.90	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	2.00
0	0	17.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	2.00
0	0	16.80	2000.00	12.00	9.50	1.00	1.00	.00	49.00	.00	2.00
0	0	15.80	2000.00	12.00	9.50	1.00	1.00	.00	79.00	.00	2.00
0	0	23.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	2.00
0	0	22.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	2.00
0	0	21.80	2000.00	12.00	9.50	1.00	.00	.00	79.00	.00	2.00
0	0	24.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	2.00
0	0	23.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	2.00

0	0	22.30	3000.00	12.00	10.00	1.00	1.00	.00	69.00	.00	2.00
0	0	18.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
0	0	17.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
1	0	16.10	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
0	0	12.20	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	2.00
0	0	11.20	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	2.00
0	0	10.10	3000.00	12.00	10.00	1.00	1.00	1.00	69.00	.00	2.00
1	0	6.00	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	2.00
0	0	5.00	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	2.00
0	0	8.10	3000.00	12.00	10.00	1.00	.00	1.00	69.00	.00	2.00
1	0	.70	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
1	0	1.70	3000.00	12.00	10.00	1.00	.00	.00	69.00	.00	2.00
0	0	.40	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	1.40	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	6.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	5.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	4.60	4500.00	12.00	10.00	1.00	1.00	.00	59.00	.00	2.00
0	0	12.50	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	11.50	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	10.40	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	18.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	2.00
0	0	17.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	2.00
0	0	16.20	4500.00	12.00	10.00	1.00	1.00	1.00	59.00	.00	2.00
0	0	24.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	23.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00
0	0	22.20	4500.00	12.00	10.00	1.00	.00	.00	59.00	.00	2.00

HC-130 14 MAY 80 CUTTERS&BOATS SLAR/RIP

1	0	7.55	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	1.00
1	0	13.60	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	1.00
1	0	20.01	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	1.00
1	0	26.41	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	1.00
1	0	20.06	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	1.00
1	0	13.92	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	1.00
1	0	7.30	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	1.00
1	0	2.83	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	1.00
1	0	3.14	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	1.00
1	0	2.93	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	1.00
1	0	8.50	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	1.00
1	0	14.52	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	1.00
1	1	1.71	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	1.00
1	1	4.53	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	1.00
1	1	10.22	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	1.00
1	1	16.50	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	1.00
1	1	22.54	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	1.00
1	1	17.95	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	1.00
1	1	10.80	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	1.00
1	1	4.72	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	1.00
1	1	1.10	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	1.00
1	1	6.16	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	1.00

1	1	5.62	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	1.00
1	1	11.86	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	1.00
1	1	18.87	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	1.00
1	1	19.41	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	1.00
1	1	12.58	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	1.00
1	1	6.62	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	1.00
1	1	4.31	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	1.00
1	1	3.38	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	1.00
1	1	1.94	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	1.00
1	1	7.39	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	1.00
1	1	8.02	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
1	1	13.15	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	1.00
1	1	14.75	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
1	1	18.95	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	1.00
1	1	21.37	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	6.00
1	1	18.90	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	1.00
1	1	13.30	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	1.00
1	1	7.93	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	1.00
1	1	7.87	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	7.00
1	1	2.33	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	1.00
1	1	2.34	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	7.00
1	1	3.97	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	1.00
1	1	3.36	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	7.00
1	0	8.73	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	14.18	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	20.12	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	4.86	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	1.40	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	2.62	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	3.80	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	9.33	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	14.98	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	1.00
1	0	20.89	2000.00	15.00	7.50	2.00	.00	.00	3.00	59.00	.00	1.00

HC-130 14 MAY 80 SMALL BOATS SLAR/RTP

1	0	2.16	2000.00	6.00	12.50	2.00	.00	1.00	2.00	70.00	.00	12.00
1	0	3.09	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	3.06	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	13.00
1	0	5.07	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	11.00
1	0	5.04	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	6.00
1	0	4.02	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	12.00
1	0	3.02	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	3.03	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	13.00
1	0	11.13	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	11.00
1	0	11.12	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	6.00
1	0	10.10	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	12.00
1	0	9.12	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	9.13	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	13.00
0	0	17.22	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	11.00
0	0	17.11	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	6.00

0	0	16.06	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	12.00
0	0	15.18	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	15.18	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	13.00
0	0	23.22	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	11.00
0	0	23.35	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	6.00
0	0	22.31	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	12.00
0	0	21.39	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	21.43	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	13.00
0	0	17.22	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	11.00
0	0	17.22	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	6.00
0	0	16.28	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	12.00
0	0	15.35	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	15.38	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	13.00
0	0	11.14	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	11.00
0	0	11.36	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	6.00
1	0	10.39	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	12.00
1	0	9.40	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	9.42	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	13.00
1	0	5.13	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	11.00
1	0	5.27	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	6.00
1	0	4.27	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	12.00
1	0	3.25	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	3.28	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	13.00
0	0	1.02	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	11.00
1	0	.94	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	6.00
1	0	1.92	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	12.00
0	0	2.87	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	2.00
1	0	2.83	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	13.00
0	0	2.00	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	12.00
0	0	2.97	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
1	0	2.98	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	13.00
1	0	5.34	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	11.00
0	0	5.34	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	6.00
0	0	4.31	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	12.00
0	0	3.38	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
1	0	3.32	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	13.00
1	0	11.48	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	11.00
0	0	11.14	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	6.00
1	0	10.32	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	12.00
0	0	9.23	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
1	0	9.35	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	13.00
0	0	17.38	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	11.00
0	0	17.36	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	6.00
1	0	16.33	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	12.00
0	0	15.41	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	15.60	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	13.00
0	0	23.34	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	6.00
0	0	21.31	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	21.40	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	13.00
0	1	2.23	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	11.00
0	1	3.14	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	6.00
1	1	3.17	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	12.00

0	1	2.33	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
1	1	4.21	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	13.00
1	1	4.27	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	11.00
1	1	3.03	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	6.00
0	1	3.26	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	12.00
0	1	4.12	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
1	1	1.97	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	13.00
0	1	10.14	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	11.00
0	1	9.08	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	6.00
0	1	9.16	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	12.00
0	1	9.98	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
1	1	8.00	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	13.00
1	1	16.03	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	11.00
1	1	15.18	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	6.00
0	1	15.27	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	12.00
0	1	16.06	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
0	1	14.06	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	13.00
1	1	21.70	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	11.00
0	1	21.03	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	6.00
1	1	20.96	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	12.00
0	1	21.76	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	19.95	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	13.00
0	1	21.62	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	11.00
0	1	20.66	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	6.00
0	1	20.71	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	12.00
0	1	20.82	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	19.60	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	13.00
1	1	15.79	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	11.00
0	1	14.83	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	6.00
0	1	14.89	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	12.00
0	1	15.78	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
0	1	13.76	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	13.00
1	1	9.53	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	11.00
0	1	8.65	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	6.00
1	1	8.52	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	12.00
0	1	9.44	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
1	1	7.52	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	13.00
1	1	3.57	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	11.00
0	1	2.64	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	6.00
1	1	2.58	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	12.00
0	1	3.45	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
1	1	2.77	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	11.00
1	1	3.69	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	6.00
1	1	3.76	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	12.00
1	1	2.85	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
1	1	4.79	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	13.00
1	1	1.51	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	11.00
1	1	2.57	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	6.00
1	1	2.56	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	12.00
1	1	1.63	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
1	1	3.48	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	13.00
1	1	4.67	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	11.00

0	1	3.63	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	6.00
1	1	3.63	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	12.00
0	1	4.66	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
1	1	2.63	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	13.00
1	1	10.90	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	11.00
0	1	9.74	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	6.00
1	1	9.84	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	12.00
0	1	10.61	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
1	1	8.61	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	13.00
0	1	16.31	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	11.00
1	1	15.77	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	6.00
0	1	15.92	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	12.00
0	1	16.67	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	14.77	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	13.00
0	1	22.71	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	11.00
0	1	21.78	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	6.00
0	1	21.71	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	12.00
0	1	22.59	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	20.50	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	13.00
0	1	22.74	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	11.00
0	1	21.81	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	6.00
0	1	21.81	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	12.00
0	1	22.66	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
0	1	20.66	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	13.00
1	1	16.56	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	11.00
1	1	15.64	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	6.00
1	1	15.58	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	12.00
1	1	16.41	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
1	1	14.58	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	13.00
0	1	10.56	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	11.00
0	1	9.53	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	6.00
0	1	9.58	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	12.00
0	1	10.90	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	8.44	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	13.00
1	1	3.84	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	11.00
0	1	2.82	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	6.00
1	1	2.78	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	12.00
1	1	3.67	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	1.94	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	13.00
1	1	1.94	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	11.00
1	1	2.81	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	6.00
1	1	2.75	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	12.00
0	1	2.05	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	3.91	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	13.00
1	1	2.30	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	11.00
1	1	3.16	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
1	1	3.22	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	12.00
1	1	2.35	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	4.26	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	13.00
0	1	4.13	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	11.00
1	1	2.96	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00

1	1	2.89	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	12.00
0	1	3.76	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	1.95	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	13.00
0	1	10.01	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	11.00
1	1	8.85	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
1	1	8.89	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	12.00
1	1	9.73	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	7.82	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	13.00
1	1	16.22	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	11.00
1	1	15.19	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
0	1	15.10	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	12.00
0	1	15.97	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	2.00
1	1	13.96	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	13.00
1	1	22.06	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	11.00
0	1	21.03	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	6.00
0	1	21.02	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	12.00
0	1	21.91	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	2.00
0	1	19.98	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	13.00
0	1	22.16	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	11.00
0	1	21.10	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	6.00
1	1	21.28	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	12.00
0	1	21.95	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	2.00
1	1	20.12	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	13.00
0	1	16.15	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	11.00
0	1	15.13	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	6.00
1	1	15.26	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	12.00
0	1	16.19	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	2.00
0	1	14.23	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	13.00
0	1	10.25	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	11.00
0	1	9.13	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	6.00
0	1	9.20	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	12.00
1	1	10.11	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	8.02	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	13.00
1	1	3.89	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	11.00
1	1	2.97	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	6.00
1	1	3.89	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	2.49	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	11.00
1	1	3.33	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	6.00
1	1	3.44	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	12.00
1	1	2.59	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	4.48	5000.00	12.00	9.50	1.00	00	.00	3.00	69.00	.00	13.00
1	0	2.18	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	3.10	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.19	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	8.94	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	11.00
1	0	4.92	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	3.89	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	2.95	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.89	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	10.48	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	11.00
1	0	10.60	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	9.62	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	12.00

1	0	8.76	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	8.84	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	16.76	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	11.00
0	0	16.88	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	15.74	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	14.88	3000.00	15.00	17.00	2.00	.00	.00	3.00	59.00	.00	2.00
1	0	14.77	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	5.17	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
1	0	4.78	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	3.79	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
0	0	2.89	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.02	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	1.34	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
0	0	1.59	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	2.41	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
0	0	3.16	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.32	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	1.47	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
0	0	1.88	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	2.61	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	3.43	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.73	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	4.85	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
1	0	4.61	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	3.70	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	2.68	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.72	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	10.15	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
1	0	10.40	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	9.40	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	8.43	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	8.57	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
1	0	17.03	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	11.00
0	0	17.10	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	15.96	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	14.97	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	15.10	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00
0	0	22.82	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	23.00	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	6.00
1	0	21.84	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	12.00
1	0	20.45	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	13.00

HC-130 14 MAY 80 RAFTS SLAR/RTP

1	0	2.28	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	3.01	2000.00	6.00	12.50	2.00	.00	1.00	2.00	70.00	.00	2.00
1	0	4.96	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	4.10	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	3.10	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
0	0	11.27	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
0	0	10.18	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
1	0	9.18	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
0	0	17.23	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00

0	0	16.28	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
0	0	15.18	2000.00	6.00	12.50	2.00	.00	.00	2.00	70.00	.00	2.00
0	0	23.35	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	22.31	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	21.39	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	17.36	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	16.36	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	15.31	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	11.46	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	10.29	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	9.46	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	5.27	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	2.00
1	0	4.34	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	2.00
1	0	3.32	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
1	0	1.01	3000.00	10.00	13.00	1.00	.00	1.00	2.00	70.00	.00	2.00
0	0	1.84	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	2.86	3000.00	10.00	13.00	1.00	.00	.00	2.00	70.00	.00	2.00
0	0	1.90	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	2.95	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	5.38	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
1	0	4.39	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	3.39	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	11.19	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	10.28	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	9.27	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	17.55	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	16.43	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	15.40	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	23.33	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	22.37	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	0	21.36	5000.00	10.00	13.00	1.00	.00	.00	2.00	89.00	.00	2.00
0	1	4.22	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
1	1	2.27	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
1	1	3.13	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	2.18	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	4.20	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
1	1	3.16	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	8.03	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
0	1	10.04	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
0	1	9.06	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
0	1	14.13	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	16.06	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	15.21	5000.00	11.00	17.00	1.00	.00	1.00	2.00	86.00	.00	2.00
0	1	19.92	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	21.88	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	20.89	5000.00	11.00	17.00	1.00	.00	.00	2.00	86.00	.00	2.00
0	1	19.63	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	21.64	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	20.71	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	13.86	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	15.69	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
0	1	14.88	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00

0	1	7.51	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
0	1	9.50	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
0	1	8.58	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
0	1	3.44	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
0	1	2.56	3000.00	10.00	13.50	1.00	.00	1.00	2.00	83.00	.00	2.00
1	1	4.78	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
1	1	2.78	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
1	1	3.70	3000.00	10.00	13.50	1.00	.00	.00	2.00	83.00	.00	2.00
1	1	3.43	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
1	1	1.59	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
1	1	2.43	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
1	1	2.56	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
0	1	4.59	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
0	1	3.77	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
0	1	8.70	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
0	1	10.72	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	9.75	2000.00	9.00	10.00	1.00	.00	1.00	2.00	81.00	.00	2.00
0	1	14.82	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	16.71	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	15.85	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	20.70	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	22.65	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	21.74	2000.00	9.00	10.00	1.00	.00	.00	2.00	81.00	.00	2.00
0	1	20.73	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
0	1	22.73	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
0	1	21.79	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
1	1	14.58	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
1	1	16.47	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
0	1	15.62	2000.00	10.00	11.00	1.00	.00	.00	3.00	80.00	.00	2.00
1	1	8.50	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	10.43	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	9.52	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
0	1	1.92	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
0	1	3.74	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	2.81	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	3.85	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	1.97	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	2.82	2000.00	10.00	11.00	1.00	.00	1.00	3.00	80.00	.00	2.00
1	1	4.25	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	2.34	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	3.16	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	2.02	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	3.86	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	2.99	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
1	1	7.86	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	9.79	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	8.83	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	14.02	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	16.02	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	15.14	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00
0	1	20.04	3000.00	10.00	11.00	1.00	.00	1.00	3.00	79.00	.00	2.00

0	1	21.95	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	2.00
0	1	21.00	3000.00	10.00	11.00	1.00	.00	.00	3.00	79.00	.00	2.00
0	1	20.06	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	22.04	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	21.13	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	2.00
0	1	14.11	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	16.11	5000.00	12.00	9.50	1.00	.00	.00	3.00	69.00	.00	2.00
1	1	15.32	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	8.19	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	10.16	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	9.29	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	1.83	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	3.84	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
0	1	2.95	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	4.40	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	2.52	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	1	3.38	5000.00	12.00	9.50	1.00	.00	1.00	3.00	69.00	.00	2.00
1	0	2.10	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.04	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	5.00	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	4.08	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.98	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	10.65	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	9.79	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	8.88	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	16.97	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	15.68	3000.00	15.00	17.00	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	14.85	3000.00	15.00	17.00	2.00	.00	.00	3.00	59.00	.00	2.00
1	0	4.85	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.92	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
0	0	2.84	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.29	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.25	5000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.44	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	3.59	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	2.65	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00
1	0	8.83	2000.00	15.00	7.50	2.00	.00	1.00	3.00	59.00	.00	2.00

HC-130 15 MAY 80 CUTTERS & BOATS ABSS/SLAR

1	0	8.40	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	4.00
1	0	8.20	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	4.00
1	0	4.40	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	1.00
1	0	10.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	4.00
1	0	10.90	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	1.00
1	0	20.60	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	4.00
1	0	17.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	4.00
1	0	16.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	1.00
1	0	20.80	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
1	0	26.40	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	4.00
1	0	24.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	4.00

0	0	22.00	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	1.00
0	0	23.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
0	0	25.70	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
0	0	21.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	1.00
0	0	25.70	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
1	0	16.80	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
0	0	19.00	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	15.80	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	1.00
0	0	19.90	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	9.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
1	0	12.90	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
1	0	9.70	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	1.00
1	0	3.50	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	6.60	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	3.80	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	1.00
1	0	6.80	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	.50	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	2.30	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	2.20	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	1.00
0	0	.50	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	2.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	4.00
1	0	2.40	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	4.00
1	0	2.90	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	1.00
1	0	3.30	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	1.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	5.40	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	4.00
1	0	2.60	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	4.00
1	0	2.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	1.00
1	0	2.60	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	4.50	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	12.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	8.70	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	8.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	1.00
1	0	8.80	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	18.20	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
1	0	18.80	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	4.00
1	0	15.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	1.00
1	0	15.40	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
1	0	18.80	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
1	0	20.40	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	21.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	4.00
1	0	21.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	1.00
1	0	22.80	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	23.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	4.00
1	0	20.80	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	4.00
1	0	22.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	1.00
1	0	25.00	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
1	0	26.40	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
1	0	18.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	4.00
1	0	15.60	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	4.00
1	0	16.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	1.00
1	0	22.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00

1	0	12.30	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	4.00
1	0	8.70	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	4.00
1	0	9.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	1.00
1	0	10.90	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	2.00
1	0	6.20	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	4.00
1	0	2.80	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	4.00
1	0	3.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	1.00
1	0	3.60	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	3.30	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	4.00
1	0	2.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	1.00
1	0	2.90	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	2.50	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	2.40	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	3.10	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	1.00
1	0	3.70	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	2.50	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	5.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	2.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	1.00
1	0	2.20	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	7.70	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	4.00
1	0	8.80	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	1.00
1	0	8.90	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
1	0	13.60	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	14.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	1.00
1	0	16.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	20.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	4.00
1	0	25.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	4.00
1	0	21.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	1.00
1	0	23.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
1	0	26.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	4.00
1	0	26.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	4.00
1	0	20.80	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	4.00
1	0	25.20	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	4.00
1	0	22.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	1.00
1	0	25.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
1	0	16.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	4.00
1	0	15.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	1.00
1	0	18.80	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
1	0	10.70	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	4.00
1	0	9.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	1.00
0	0	11.70	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
1	0	7.20	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	4.00
1	0	3.70	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	1.00
1	0	5.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
1	0	2.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	1.00
1	1	1.30	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	1.00
1	1	5.60	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	1.00
1	1	6.20	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	4.00
1	1	4.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	1.00
1	1	6.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	13.30	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	4.00
1	1	10.90	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	1.00

1	1	12.70	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
1	1	18.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	4.00
1	1	18.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	1.00
1	1	17.00	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	2.00
1	1	24.60	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	4.00
1	1	23.80	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	1.00
1	1	20.70	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	1.00
1	1	14.60	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	1.00
1	1	8.80	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	1.00
1	1	3.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	1.00
1	1	2.30	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	1.00
1	1	1.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	1.00
1	1	6.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	1.00
1	1	12.70	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	1.00
1	1	15.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	4.00
1	1	18.80	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	1.00
1	1	22.00	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	4.00
1	1	25.00	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	1.00
1	1	26.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
1	1	15.20	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	1.00
1	1	8.90	3000.00	11.00	6.50	.50	1.00	1.00	63.00	.00	1.00
1	1	2.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	1.00
1	1	3.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	1.00

HC-130 15 MAY 80 SMALL BOATS AOSS/SLAR

1	1	1.00	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	11.00
1	1	2.10	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
1	1	2.20	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	12.00
1	1	3.20	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
1	1	1.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	4.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	11.00
1	1	4.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
1	1	5.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	12.00
1	1	6.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	4.70	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	11.00
1	1	3.80	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
1	1	3.70	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	12.00
1	1	2.60	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
1	1	4.70	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	6.50	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	6.00
0	1	10.80	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	11.00
1	1	9.80	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
1	1	9.90	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	12.00
1	1	9.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
0	1	10.10	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	12.80	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
0	1	18.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	11.00
0	1	17.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	6.00
0	1	17.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	12.00
0	1	16.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	6.00
0	1	18.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	2.00
0	1	20.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	6.00

0	1	23.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	11.00
0	1	22.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
0	1	22.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	12.00
0	1	21.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
0	1	23.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	25.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	6.00
0	1	22.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	11.00
0	1	21.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
0	1	21.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	12.00
0	1	20.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
0	1	22.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	25.10	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
0	1	17.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	11.00
0	1	15.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	6.00
1	1	15.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	12.00
1	1	15.00	2000.00	13.00	8.00	.80	.00	.00	66.00	.00	6.00
0	1	17.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	19.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	6.00
0	1	10.60	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	11.00
0	1	9.60	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
1	1	9.60	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	12.00
0	1	8.70	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
0	1	10.60	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	13.00	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	6.00
1	1	4.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	11.00
1	1	3.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	6.00
1	1	3.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	12.00
1	1	2.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	6.00
0	1	4.90	2000.00	13.00	8.00	.50	.00	1.00	66.00	.00	2.00
1	1	2.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	12.00
1	1	3.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	6.00
0	1	1.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	1.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	11.00
0	1	2.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	6.00
0	1	2.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	12.00
0	1	3.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	6.00
0	1	1.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	4.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	11.00
0	1	3.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	6.00
0	1	3.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	12.00
0	1	2.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	6.00
0	1	4.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	11.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	11.00
0	1	10.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	6.00
0	1	10.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	12.00
0	1	9.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	6.00
0	1	11.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	17.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	11.00
0	1	16.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	6.00
0	1	16.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	12.00
0	1	15.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	6.00
0	1	17.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	2.00

0	1	19.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	6.00
0	1	23.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	11.00
0	1	22.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	6.00
0	1	22.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	12.00
0	1	21.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	6.00
0	1	23.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	25.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	6.00
0	1	4.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	11.00
0	1	3.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	6.00
1	1	3.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	12.00
0	1	2.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	6.00
0	1	4.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
0	1	6.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	6.00
1	1	1.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	11.00
1	1	2.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	6.00
1	1	2.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	12.00
1	1	3.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	6.00
0	1	1.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	0	6.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	11.00
1	0	6.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	6.00
1	0	5.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	12.00
1	0	5.40	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	6.00
1	0	4.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	12.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	11.00
0	0	12.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	6.00
0	0	11.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	12.00
0	0	11.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	6.00
0	0	10.10	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	18.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	11.00
0	0	18.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	6.00
0	0	17.10	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	12.00
0	0	17.10	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	6.00
0	0	16.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	20.50	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	6.00
0	0	24.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	11.00
0	0	24.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	6.00
0	0	23.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	12.00
0	0	23.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	6.00
0	0	22.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	26.80	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	6.00
0	0	23.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	11.00
0	0	23.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	22.30	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	12.00
0	0	22.30	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	21.30	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	25.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	16.70	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	11.60	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	11.00
0	0	11.60	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	10.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	12.00
0	0	10.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	9.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00

1	0	5.90	3000.00	14.00	7.00	1.00	.00	.00	77.00	.00	6.00
1	0	4.90	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	12.00
1	0	4.90	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	11.00
0	0	.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	1.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	12.00
0	0	1.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
1	0	2.00	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	.90	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	11.00
1	0	.90	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	6.00
1	0	1.90	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	12.00
0	0	1.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	6.00
1	0	3.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	5.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	11.00
1	0	5.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	6.00
1	0	4.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	12.00
1	0	4.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	6.00
1	0	2.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
0	0	6.10	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	6.00
0	0	10.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	11.00
0	0	10.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	9.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	12.00
0	0	9.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	8.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	17.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	11.00
0	0	17.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	16.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	12.00
0	0	16.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	15.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	19.50	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	6.00
0	0	23.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	11.00
0	0	23.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	22.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	12.00
0	0	22.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	6.00
0	0	21.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	24.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	11.00
0	0	24.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	6.00
0	0	23.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	12.00
0	0	23.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	6.00
0	0	22.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
0	0	26.70	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	6.00
0	0	18.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	11.00
0	0	18.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
0	0	17.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	12.00
0	0	17.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
0	0	16.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	11.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	11.00
0	0	11.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	6.00
1	0	10.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	12.00
0	0	10.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	6.00
0	0	9.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	2.00
1	0	5.60	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	11.00

1	0	5.70	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
1	0	4.60	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	12.00
1	0	4.60	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
1	0	3.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	11.00
0	0	.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
1	0	1.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	12.00
1	0	1.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	6.00
1	0	2.40	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	1.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	11.00
0	0	1.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
1	0	2.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	12.00
1	0	2.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
0	0	2.90	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	4.90	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	11.00
1	0	4.90	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
1	0	3.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	12.00
1	0	3.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
1	0	2.70	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	7.20	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
0	0	11.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	11.00
0	0	11.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	6.00
1	0	10.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	12.00
0	0	10.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	6.00
1	0	9.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	17.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	11.00
1	0	17.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
1	0	15.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	12.00
0	0	15.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	6.00
0	0	14.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	23.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	11.00
0	0	23.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	6.00
0	0	22.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	12.00
0	0	22.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	6.00
0	0	21.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	24.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	11.00
0	0	24.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	6.00
0	0	23.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	12.00
0	0	23.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	6.00
0	0	22.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	17.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	11.00
0	0	17.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
1	0	16.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	12.00
0	0	16.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
0	0	15.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	11.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	11.00
1	0	11.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	6.00
1	0	10.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	12.00
1	0	10.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	6.00
1	0	9.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
1	0	4.80	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
1	0	4.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	12.00

1	0	4.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
1	0	7.30	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
0	0	1.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	11.00
0	0	1.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
1	0	2.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	6.00
0	0	3.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00

HC-130 15 MAY 80 RAFTS ADSS/SLAR

1	1	3.10	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	1.20	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	2.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	5.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	6.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	2.60	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	4.80	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	3.60	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	2.00
1	1	6.40	2000.00	15.00	7.00	.50	1.00	1.00	68.00	.00	3.00
0	1	9.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	11.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	10.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	12.10	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	3.00
0	1	16.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	2.00
0	1	18.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	2.00
0	1	17.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	2.00
0	1	20.80	2000.00	15.00	7.00	.50	1.00	.00	68.00	.00	3.00
0	1	21.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	23.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	22.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	2.00
0	1	25.00	2000.00	15.00	7.00	.50	.00	.00	68.00	.00	3.00
0	1	20.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	22.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	21.90	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	15.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	17.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	16.00	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	8.50	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
0	1	10.50	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
1	1	9.50	2000.00	13.00	8.00	.50	1.00	.00	66.00	.00	2.00
1	1	2.80	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
1	1	4.90	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	4.90	2000.00	13.00	8.00	.50	.00	1.00	66.00	.00	2.00
1	1	1.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
1	1	2.10	2000.00	13.00	8.00	.50	.00	.00	66.00	.00	2.00
0	1	3.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	1.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	2.00	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	2.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	4.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	3.80	3000.00	11.00	9.00	.50	1.00	1.00	64.00	.00	2.00
0	1	9.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	11.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	10.00	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	15.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	2.00

0	1	17.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	2.00
0	1	16.00	3000.00	11.00	9.00	.50	1.00	.00	64.00	.00	2.00
0	1	21.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	23.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	22.10	3000.00	11.00	9.00	.50	.00	.00	64.00	.00	2.00
0	1	2.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	1	4.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
0	1	3.80	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	1	1.20	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	1	3.20	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	1	2.30	3000.00	11.00	6.50	.50	.00	.00	63.00	.00	2.00
1	0	6.20	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
1	0	5.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
1	0	4.40	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	8.50	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
1	0	4.50	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	3.00
0	0	12.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	11.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	10.10	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	10.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	3.00
0	0	18.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	17.10	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	16.00	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	20.50	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	2.00
0	0	16.30	3000.00	15.00	12.00	1.00	1.00	.00	77.00	.00	3.00
0	0	24.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	23.30	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	22.20	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	26.80	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	2.00
0	0	22.60	3000.00	15.00	12.00	1.00	.00	.00	77.00	.00	3.00
0	0	23.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	22.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	21.40	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	25.80	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	21.70	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	3.00
0	0	17.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	19.80	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	11.60	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	10.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	9.50	3000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
1	0	5.90	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	3.90	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	8.10	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	1.40	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
1	0	2.00	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	2.10	3000.00	15.00	7.00	1.00	.00	.00	77.00	.00	3.00
0	0	1.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
0	0	1.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	2.90	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	2.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	3.00
1	0	4.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00

1	0	4.00	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	2.80	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
0	0	7.40	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	2.00
1	0	2.10	2000.00	15.00	7.00	1.00	1.00	1.00	77.00	.00	3.00
0	0	10.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	9.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	8.90	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	13.40	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	17.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	16.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	15.00	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	19.50	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	2.00
0	0	15.50	2000.00	15.00	7.00	1.00	1.00	.00	77.00	.00	3.00
0	0	23.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	22.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	21.00	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	25.50	2000.00	15.00	7.00	1.00	.00	.00	77.00	.00	2.00
0	0	24.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
0	0	23.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
0	0	22.20	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
0	0	26.70	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	2.00
0	0	22.70	2000.00	15.00	9.00	1.00	1.00	.00	88.00	.00	3.00
1	0	18.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	17.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	16.00	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	20.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	11.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	2.00
0	0	10.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	2.00
0	0	9.50	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	2.00
0	0	10.00	2000.00	15.00	9.00	1.00	1.00	1.00	88.00	.00	3.00
1	0	5.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	4.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	3.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	8.30	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	1.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	2.50	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
1	0	2.20	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	3.00
0	0	.80	2000.00	15.00	9.00	1.00	.00	.00	88.00	.00	2.00
0	0	1.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	1.90	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	3.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	3.40	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	3.00
0	0	4.20	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	3.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	2.70	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
1	0	7.20	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	3.20	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	3.00
0	0	11.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	10.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	9.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	17.00	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	15.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00

0	0	14.80	5000.00	15.00	7.00	1.00	1.00	.00	88.00	.00	2.00
0	0	23.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	22.40	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	21.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	26.00	5000.00	15.00	7.00	1.00	.00	.00	88.00	.00	2.00
0	0	24.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	23.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	22.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	26.50	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	17.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	16.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	15.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	12.50	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	11.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
1	0	10.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	9.00	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	13.50	5000.00	15.00	7.00	1.00	1.00	.00	63.00	.00	2.00
0	0	5.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	3.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	7.50	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	1.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	2.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	3.00	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	2.00
0	0	3.50	5000.00	15.00	7.00	1.00	.00	.00	63.00	.00	3.00

HC-130 15 MAY 80 CUTTERS & SMALL BOATS SLAR/RIP

1	1	2.53	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	1.00
1	1	1.64	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	4.00
1	1	3.63	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	1.00
1	1	4.73	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	4.00
1	1	10.09	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	1.00
1	1	9.71	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	4.00
1	1	16.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	1.00
1	1	17.38	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	4.00
1	1	22.85	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	1.00
1	1	23.25	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
1	1	23.04	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
1	1	28.69	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	1.00
1	1	28.52	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
0	1	36.00	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	1.00
0	1	35.66	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
0	1	33.72	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
0	1	42.70	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	1.00
0	1	41.77	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	4.00
0	1	38.10	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	4.00
0	1	38.06	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	1.00
1	1	42.37	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	2.00
1	1	42.20	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	4.00
1	1	38.02	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	4.00
1	1	32.03	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	36.16	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00

1	1	36.24	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	33.33	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	26.33	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	30.57	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	30.57	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	14.18	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	17.94	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	18.53	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	18.53	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	16.93	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	8.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	10.25	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	12.66	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	12.66	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	10.34	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	2.28	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	6.59	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	3.09	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	5.96	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	2.79	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	4.02	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	1.00
1	1	2.96	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	4.35	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	4.00
1	1	3.12	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	3.50	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	3.21	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	3.76	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	4.64	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	4.34	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	3.76	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	9.20	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	8.95	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	9.67	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	9.16	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	10.72	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	15.23	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	15.06	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	17.55	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	15.06	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	18.35	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	21.14	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	21.06	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	24.94	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	20.89	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	24.27	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	27.19	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	28.59	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	30.95	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	27.19	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	30.40	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
0	1	32.37	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	35.07	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00

1	1	36.38	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	33.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	34.86	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
0	1	38.56	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	1.00
1	1	41.39	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	42.95	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	40.50	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	40.42	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	4.00
1	1	32.40	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	32.40	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	35.19	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	31.64	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
0	1	26.65	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	26.53	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	29.39	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	25.85	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	20.76	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	20.21	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	22.61	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	20.04	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	14.69	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	14.10	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	15.45	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	10.94	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	8.86	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	8.27	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	8.82	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	10.72	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	2.84	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	2.79	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	5.79	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	1	3.13	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	1.00
1	1	4.08	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	4.00
1	0	2.91	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	1.00
1	0	2.70	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	2.00
1	0	2.68	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	4.00
1	0	6.37	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	1.00
1	0	7.72	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	12.16	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	1.00
1	0	13.64	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	12.28	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	4.00
1	0	18.01	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	1.00
1	0	19.55	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	2.00
1	0	19.45	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	4.00
1	0	23.80	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	1.00
1	0	25.36	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	25.36	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	4.00
1	0	29.72	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	1.00
1	0	31.66	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	31.37	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	4.00
1	0	30.24	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	1.00
1	0	31.21	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00

1	0	30.95	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	4.00
1	0	28.64	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	1.00
1	0	25.23	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
1	0	25.06	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	4.00
1	0	19.20	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	1.00
1	0	17.64	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	4.00
1	0	13.80	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	1.00
1	0	10.63	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	4.00
1	0	7.49	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	1.00
1	0	3.51	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	4.00
1	0	1.56	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	1.00
1	0	4.22	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	1.00
1	0	9.84	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	1.00
1	0	15.27	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	1.00
1	0	21.06	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	1.00
1	0	20.97	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	1.00
1	0	15.15	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	1.00
1	0	9.83	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	1.00
1	0	3.51	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	1.00
1	0	2.67	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	1.00
1	0	8.06	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	1.00
1	0	6.86	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	1.00

HC-130 15 MAY 80 SMALL BOATS SLAR/RIP

1	1	1.46	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	11.00
1	1	1.48	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	2.51	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	12.00
1	1	2.88	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	3.51	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	4.62	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	11.00
1	1	4.64	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	3.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	12.00
1	1	3.58	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	2.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	6.77	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	10.61	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	11.00
1	1	10.61	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	9.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	12.00
1	1	9.58	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	8.50	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	12.75	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	16.63	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	11.00
0	1	16.63	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
0	1	15.61	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	12.00
1	1	15.59	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
1	1	14.55	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	18.76	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	6.00
0	1	22.86	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	11.00
0	1	22.86	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	21.81	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	12.00

0	1	21.41	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	20.38	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	28.80	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	28.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	11.00
0	1	28.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	27.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	12.00
0	1	27.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	26.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	34.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	11.00
0	1	34.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	33.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	12.00
0	1	33.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	32.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	40.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	11.00
0	1	40.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	39.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	12.00
0	1	39.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	6.00
0	1	38.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	39.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	11.00
0	1	39.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	6.00
0	1	38.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	12.00
0	1	38.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	6.00
0	1	37.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	2.00
0	1	34.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	11.00
0	1	34.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
0	1	33.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
0	1	32.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	28.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	11.00
0	1	28.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
0	1	27.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
0	1	27.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
0	1	26.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	16.62	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	11.00
0	1	16.22	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	15.25	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
1	1	15.26	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	14.23	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	18.44	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	10.35	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	11.00
1	1	10.34	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	9.29	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
1	1	9.32	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	8.24	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	12.44	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	4.30	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	11.00
1	1	4.28	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	3.22	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
1	1	3.23	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	6.38	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	2.94	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	12.00
0	1	2.95	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	6.00
1	1	3.99	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00

1	1	2.16	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	2.09	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	3.09	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	5.32	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
0	1	5.21	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	4.24	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
1	1	4.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	3.19	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	7.51	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	11.29	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
1	1	11.28	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	10.22	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	10.24	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	9.17	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	13.51	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	17.26	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	11.00
0	1	17.26	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	6.00
0	1	16.24	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	12.00
0	1	16.27	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	6.00
0	1	15.13	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	2.00
1	1	19.41	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	6.00
0	1	23.15	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
0	1	23.14	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	22.08	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	22.25	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	6.00
0	1	21.11	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	25.32	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
1	1	28.63	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
0	1	28.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	27.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	27.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	26.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	31.03	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	34.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
0	1	34.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	33.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	33.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	32.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	40.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	11.00
0	1	40.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	39.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	12.00
0	1	39.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	6.00
0	1	38.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	34.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
0	1	34.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
0	1	33.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
0	1	33.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
0	1	32.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	28.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
0	1	28.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
0	1	27.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
0	1	27.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00

0	1	26.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	22.74	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
1	1	22.84	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	21.77	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
0	1	21.81	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
0	1	20.66	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	25.02	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
0	1	16.74	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
0	1	16.74	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	15.74	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
1	1	15.77	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	14.69	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	18.87	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	10.91	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
1	1	10.90	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	9.83	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
1	1	9.86	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	8.78	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	13.08	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	4.90	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	11.00
1	1	4.94	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	3.83	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
1	1	3.84	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	2.76	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	6.80	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	2.18	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	12.00
1	1	2.16	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	6.00
1	1	3.16	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	0	2.01	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	6.00
1	0	1.96	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	12.00
1	0	2.89	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	6.00
1	0	4.78	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	4.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	12.00
1	0	3.63	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	5.76	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	7.68	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	11.77	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	11.00
1	0	10.76	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	10.72	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	12.00
1	0	9.76	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	11.96	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	13.38	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
1	0	17.84	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	11.00
0	0	16.72	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	6.00
1	0	16.80	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	12.00
0	0	15.72	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	17.80	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	19.66	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	23.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	11.00
0	0	22.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	22.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	12.00
0	0	21.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00

0	0	23.78	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	25.80	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	29.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	11.00
0	0	28.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	28.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	12.00
0	0	27.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	6.00
0	0	29.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	29.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	11.00
0	0	28.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
0	0	28.45	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	12.00
0	0	27.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
0	0	29.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	23.62	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	11.00
0	0	22.53	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	12.00
0	0	21.55	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
0	0	23.60	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	25.52	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
0	0	17.49	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	11.00
0	0	16.43	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
1	0	16.50	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	12.00
0	0	15.45	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	6.00
0	0	17.52	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	19.33	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
0	0	11.73	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	11.00
1	0	10.70	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
1	0	10.59	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	12.00
1	0	9.61	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
0	0	11.69	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	2.00
0	0	13.37	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
0	0	5.60	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	11.00
1	0	4.50	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
1	0	4.56	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	12.00
0	0	3.56	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
0	0	5.60	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	7.39	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	6.00
1	0	2.26	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	3.16	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	5.24	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	11.00
1	0	4.14	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
0	0	3.17	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	5.25	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
1	0	7.09	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
0	0	11.36	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	11.00
0	0	10.26	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	10.11	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	12.00
1	0	9.20	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	11.20	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
1	0	13.09	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
0	0	17.53	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	11.00
0	0	16.46	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
1	0	16.38	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	12.00
0	0	15.46	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00

0	0	17.51	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
0	0	19.32	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	6.00
0	0	23.40	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	11.00
0	0	22.28	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	6.00
0	0	22.34	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	12.00
0	0	21.26	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	6.00
0	0	23.35	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	2.00
0	0	25.24	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	6.00
0	0	23.70	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	11.00
0	0	22.46	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
0	0	22.49	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	12.00
0	0	21.50	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
0	0	23.59	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	25.44	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
0	0	17.42	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	11.00
1	0	16.35	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
0	0	16.38	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	12.00
0	0	15.39	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
0	0	17.38	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	19.20	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
1	0	11.48	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	11.00
0	0	10.37	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
1	0	10.45	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	12.00
1	0	9.53	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
0	0	11.53	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	13.96	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
1	0	5.31	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	11.00
1	0	4.20	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
1	0	4.06	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	12.00
1	0	3.19	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
0	0	5.24	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	2.00
0	0	7.22	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
1	0	1.91	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
1	0	1.84	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	12.00
1	0	2.83	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	6.00
1	0	6.16	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	11.00
1	0	7.22	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	6.00
1	0	6.84	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	12.00
0	0	7.86	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	6.00
1	0	5.57	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	2.00
1	0	5.06	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	6.00
1	0	5.96	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	11.00
1	0	7.03	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
1	0	6.67	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	12.00
1	0	7.71	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00
1	0	5.39	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
1	0	4.51	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	6.00

HC-130 15 MAY 80 RAFIS SLAR/RIP

1	1	3.49	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	3.23	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	3.00
1	1	2.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00

0	1	2.87	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	3.00
1	1	9.54	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	8.50	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
1	1	9.04	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	3.00
0	1	15.60	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
0	1	14.56	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	2.00
0	1	14.77	2000.00	15.00	12.00	1.00	.00	1.00	3.00	77.00	.00	3.00
0	1	21.82	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	20.37	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	20.82	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	3.00
0	1	28.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	27.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	26.55	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	34.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	33.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	32.26	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	40.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	39.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	38.28	2000.00	15.00	12.00	1.00	.00	.00	3.00	77.00	.00	2.00
0	1	39.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	2.00
0	1	38.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	2.00
0	1	36.99	5000.00	15.00	7.00	1.00	.00	.00	4.00	77.00	.00	2.00
0	1	33.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	32.08	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	28.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	27.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	26.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	16.10	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	15.26	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	18.23	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	18.44	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	14.48	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	3.00
1	1	10.23	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	9.32	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	8.27	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	12.44	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	8.48	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	3.00
1	1	4.16	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	3.22	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	2.28	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	6.84	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	2.95	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
1	1	4.12	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	2.00
0	1	3.68	5000.00	15.00	7.00	1.00	.00	1.00	4.00	77.00	.00	3.00
0	1	2.09	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	3.18	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	2.78	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	3.00
0	1	5.14	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	4.18	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	3.20	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	7.51	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	3.54	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	3.00

0	1	11.31	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	10.20	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	9.19	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	13.55	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
1	1	9.92	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	3.00
0	1	17.15	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	2.00
0	1	16.18	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	2.00
1	1	15.21	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	2.00
0	1	19.70	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	2.00
0	1	15.84	5000.00	15.00	9.00	1.00	.00	.00	3.00	82.00	.00	3.00
0	1	23.02	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	22.12	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	21.06	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	25.57	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	21.36	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	3.00
0	1	28.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	27.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	26.87	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	31.20	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	27.07	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	3.00
0	1	34.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	33.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	32.30	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	40.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	39.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	38.62	5000.00	15.00	9.00	1.00	.00	1.00	3.00	82.00	.00	2.00
0	1	34.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	33.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	32.37	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	28.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	27.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	26.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	22.72	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	21.72	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	20.71	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	25.14	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	21.01	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	3.00
0	1	16.65	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	15.69	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	14.70	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	19.12	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	18.90	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	3.00
1	1	10.78	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	9.78	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	8.79	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
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1	1	3.79	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	2.78	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
0	1	7.18	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	3.00	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	3.00

1	1	2.19	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	3.16	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	2.00
1	1	2.84	3000.00	15.00	9.00	1.00	.00	1.00	3.00	88.00	.00	3.00
1	0	2.83	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	2.00
1	0	2.02	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	2.00
1	0	2.62	3000.00	15.00	7.00	1.00	.00	1.00	3.00	63.00	.00	2.00
1	0	5.82	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	4.54	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	7.93	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	3.00
1	0	9.76	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
1	0	11.77	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
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1	0	17.90	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	2.00
0	0	16.69	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	20.21	3000.00	15.00	7.00	.50	.00	.00	3.00	68.00	.00	3.00
0	0	21.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	23.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	22.70	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	25.57	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	3.00
0	0	27.94	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	29.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	28.84	3000.00	15.00	7.00	.50	.00	1.00	3.00	68.00	.00	2.00
0	0	27.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	29.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
0	0	28.46	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
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0	0	25.69	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	3.00
0	0	15.52	5000.00	7.00	8.00	.50	.00	.00	3.00	66.00	.00	2.00
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1	0	3.70	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	2.00
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1	0	4.50	5000.00	7.00	8.00	.50	.00	1.00	3.00	66.00	.00	2.00
1	0	3.09	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
1	0	3.24	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
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1	0	10.16	5000.00	11.00	9.00	.50	.00	1.00	4.00	64.00	.00	2.00
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0	0	22.39	5000.00	11.00	9.00	.50	.00	.00	4.00	64.00	.00	2.00
0	0	21.59	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	23.57	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	22.49	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	15.43	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	17.46	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	16.35	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
0	0	9.53	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	2.00
0	0	11.53	2000.00	11.00	6.50	.50	.00	.00	2.00	63.00	.00	2.00
1	0	10.35	2000.00	11.00	6.50	.50	.00	1.00	2.00	63.00	.00	2.00
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1	0	5.96	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	2.00
1	0	6.62	3000.00	11.00	6.50	.50	.00	.00	3.00	63.00	.00	2.00

Appendix B

EXAMPLES OF SLAR IMAGERY VIEWED FOR ANALYSIS

Figure	Sensor	Date[1]	Target	Altitude (ft)	Range (nm)	Gain (Setting)
1	SLAR/RIP	2 Oct 79	Target #1 - Canopied life raft with radar reflector	2000	3.6	5
2	SLAR/RIP	2 Oct 79	Target #2 - 7-Man life raft	2000	3.7	5
3	SLAR/RIP	4 Oct 79	Coast Guard 41-foot UTB	3000	5.3	4
4	SLAR/RIP	3 Oct 79	Coast Guard 41-foot UTB	5000	4.1	4
5	SLAR/RIP	2 Oct 79	Coast Guard 41-foot UTB	7500	5.7	7
6	SLAR/RIP	4 Oct 79	Target #2 - Small boat, 13-foot fiberglass	3000	6.4	5
7	SLAR/RIP	4 Oct 79	Coast Guard 95-foot WPB	3000	10.4	4
8	SLAR/RIP	15 May 80	Target Array, UTBs, WPBs	3000	7.1[2]	3
9	AOSS Horizontal[3]	15 May 80	Target Array, UTBs, WPBs	3000	4.5[2]	N/A
10	AOSS Vertical[4]	15 May 80	Target Array, UTBs, WPBs	2000	4.8[2]	N/A

[1]All imagery in this appendix was collected in Block Island Sound.

[2]Range to center of array.

[3]Horizontally polarized antenna.

[4]Vertically polarized antenna.

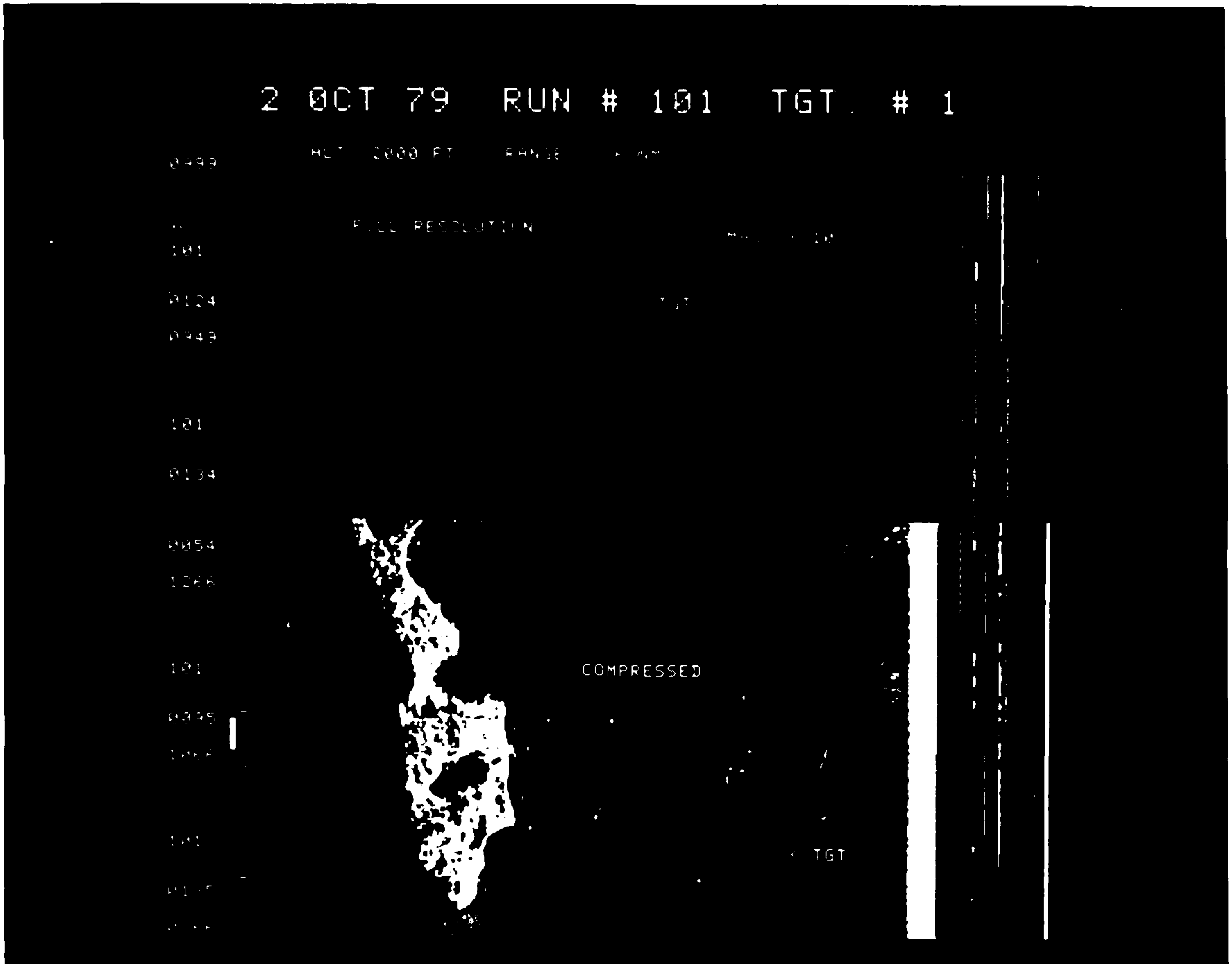

FIGURE 1. TARGET (TGT) #1 CANOPY LIFE RAFT WITH RADAR REFLECTOR

NASA PHOTO

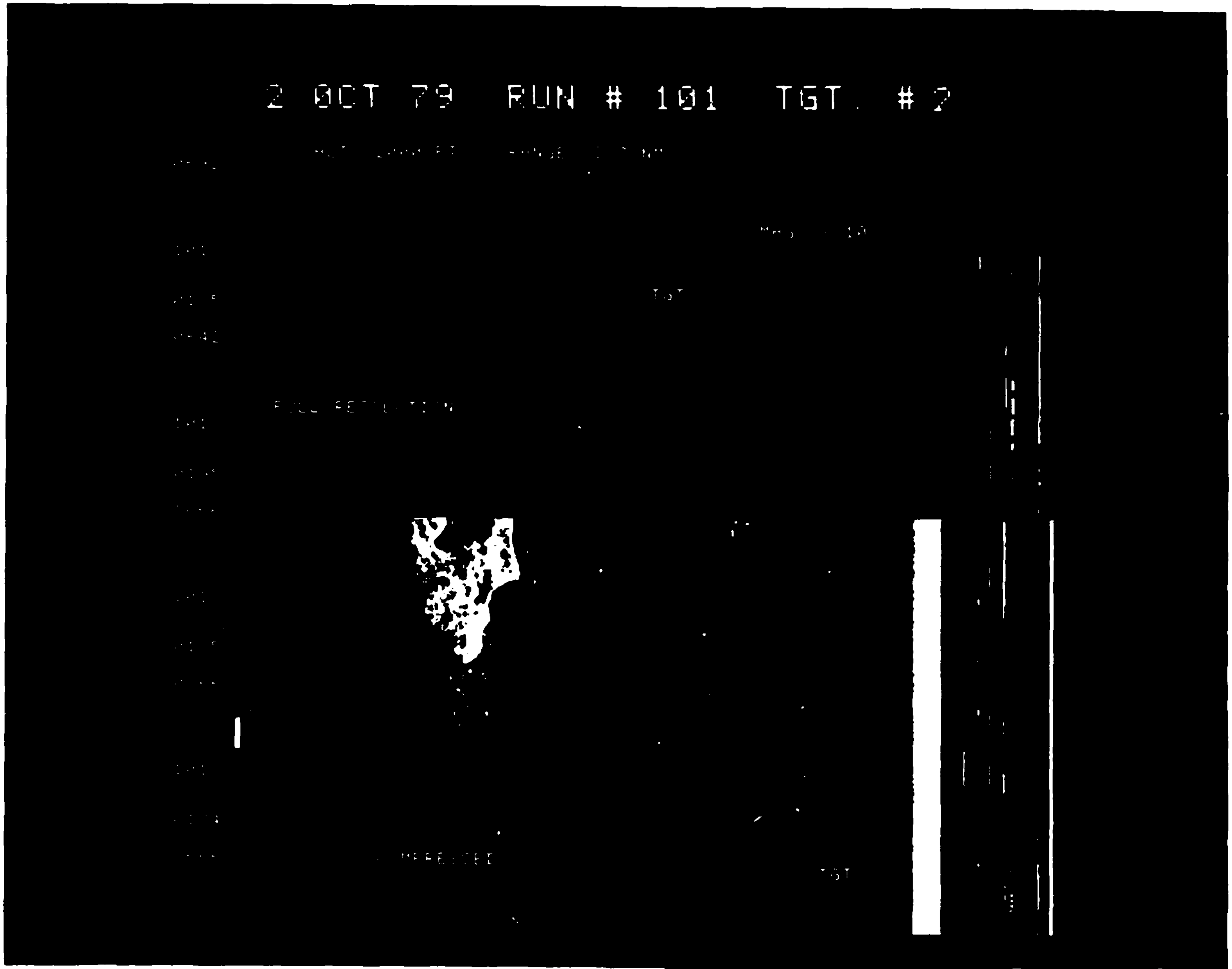

FIGURE 2. TGT #2 7-MAN LIFE RAFT NASA PHOTO

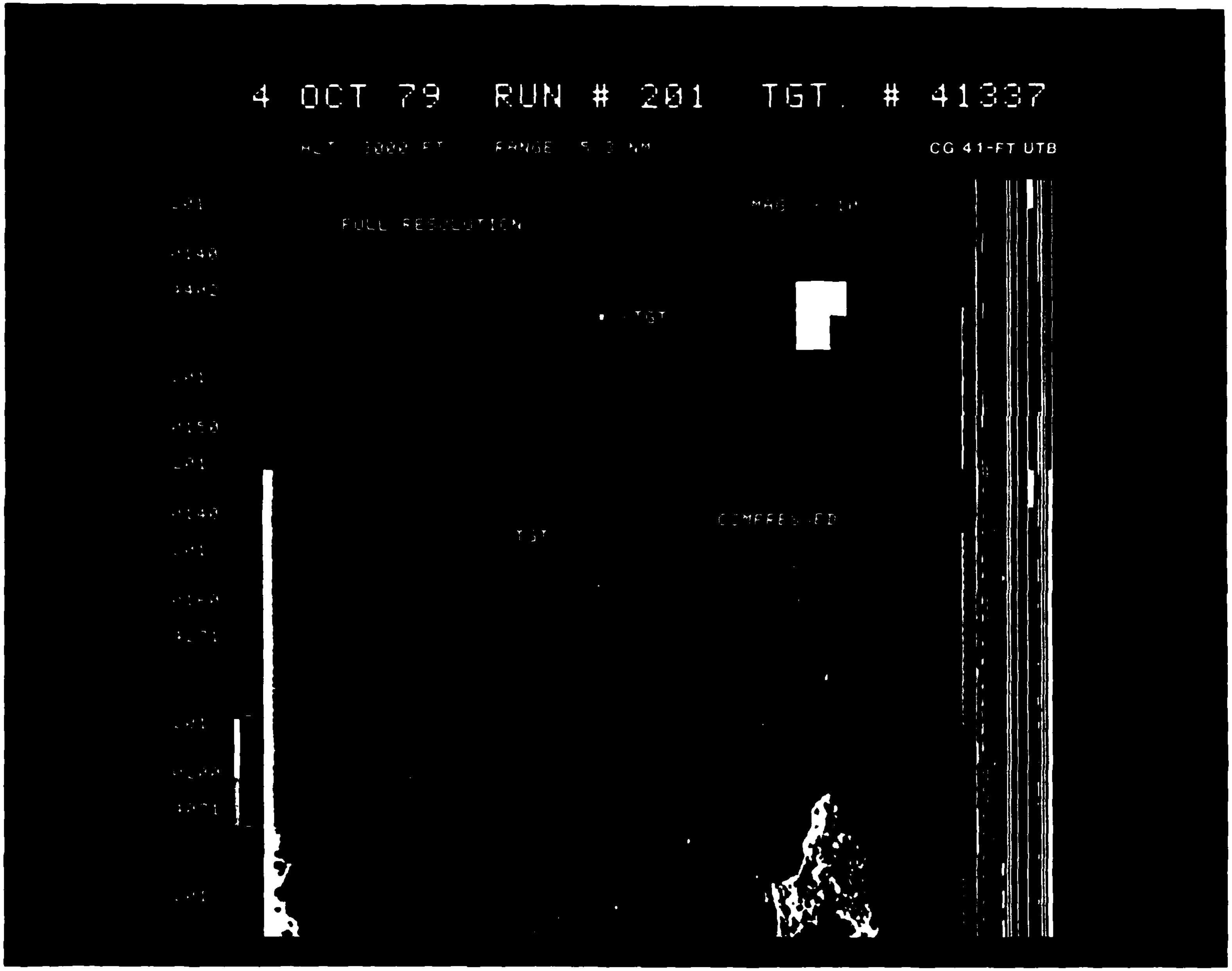

FIGURE 3.

NASA PHOTO

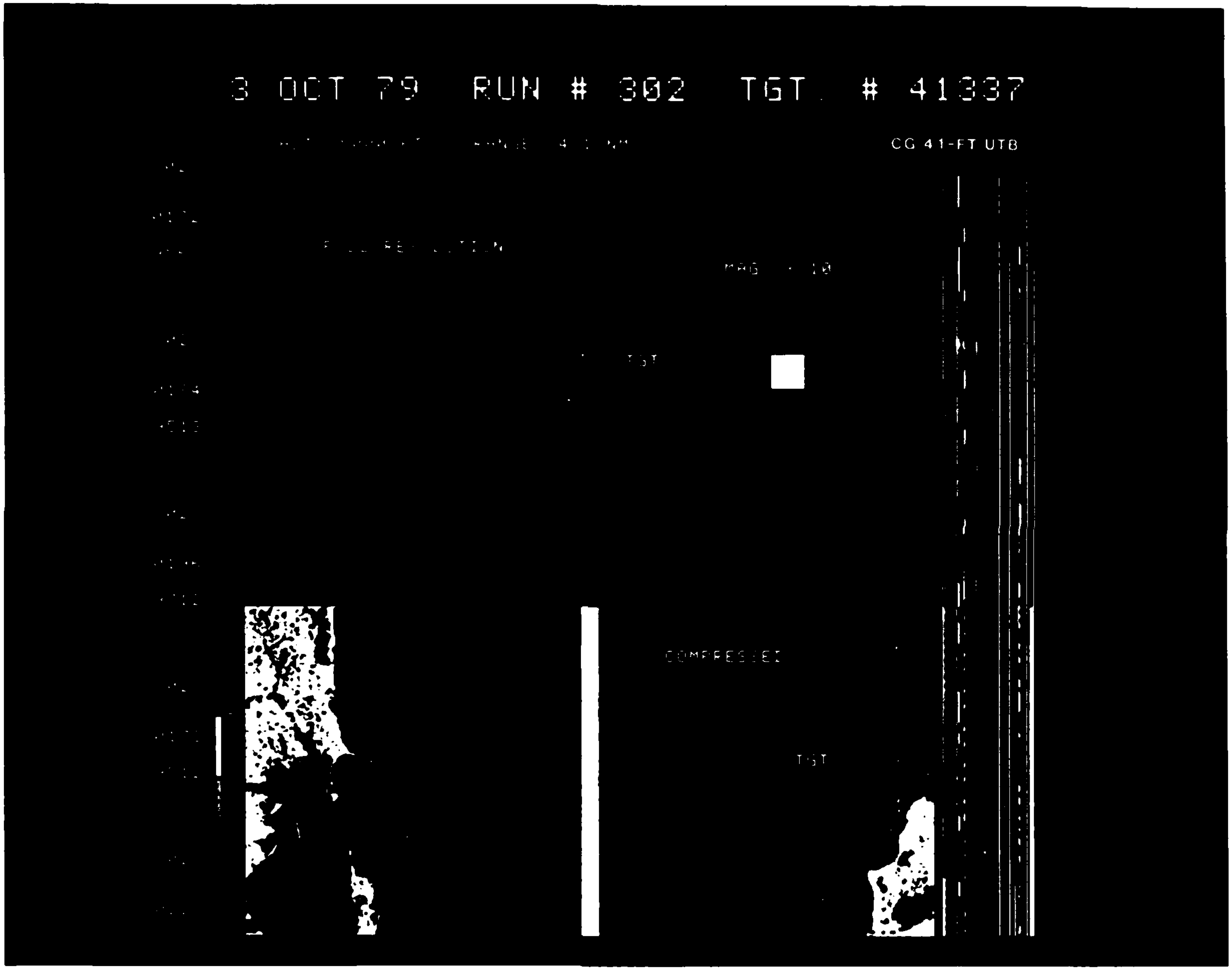

FIGURE 4.

NASA PHOTO

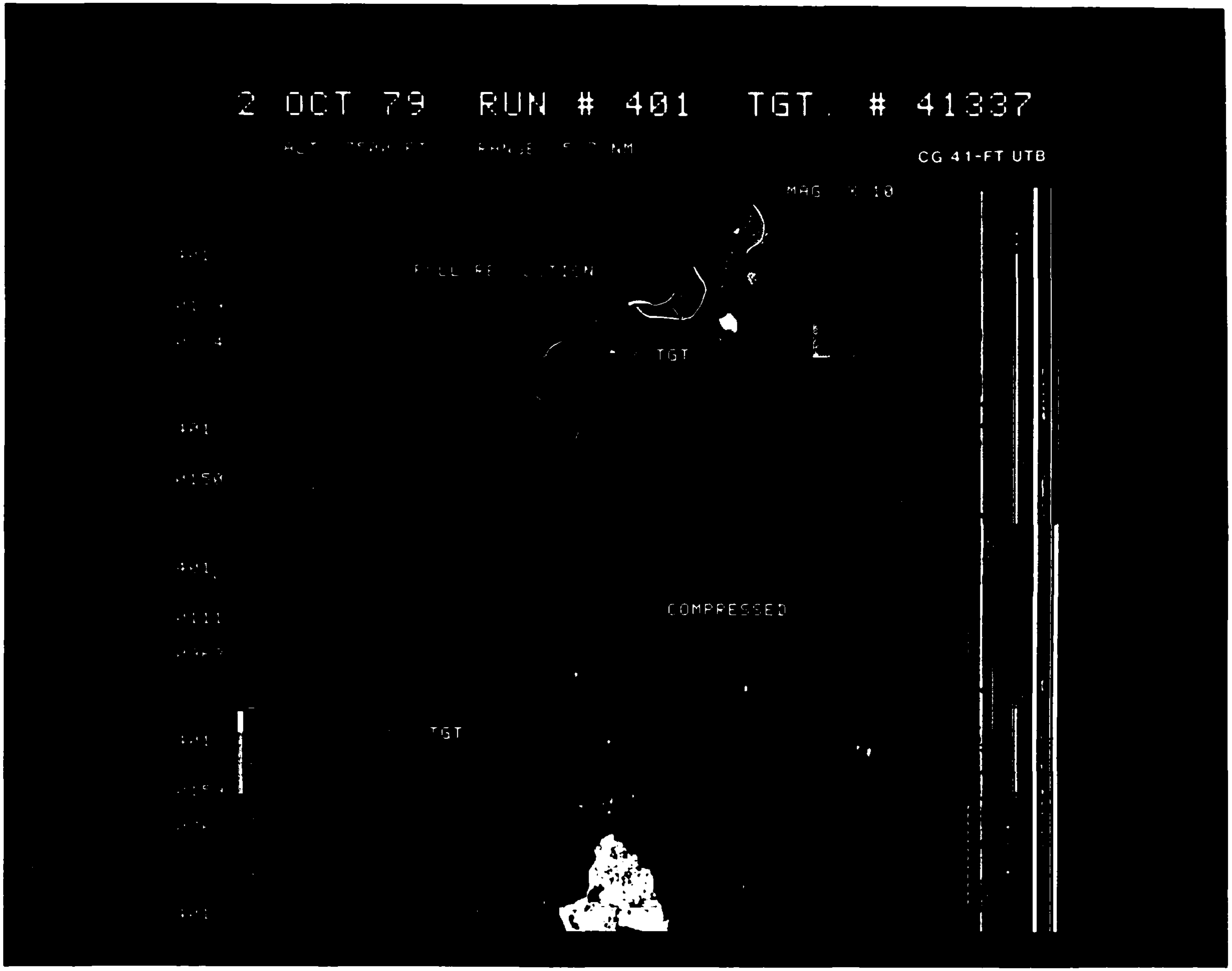

FIGURE 6. **NASA PHOTO**

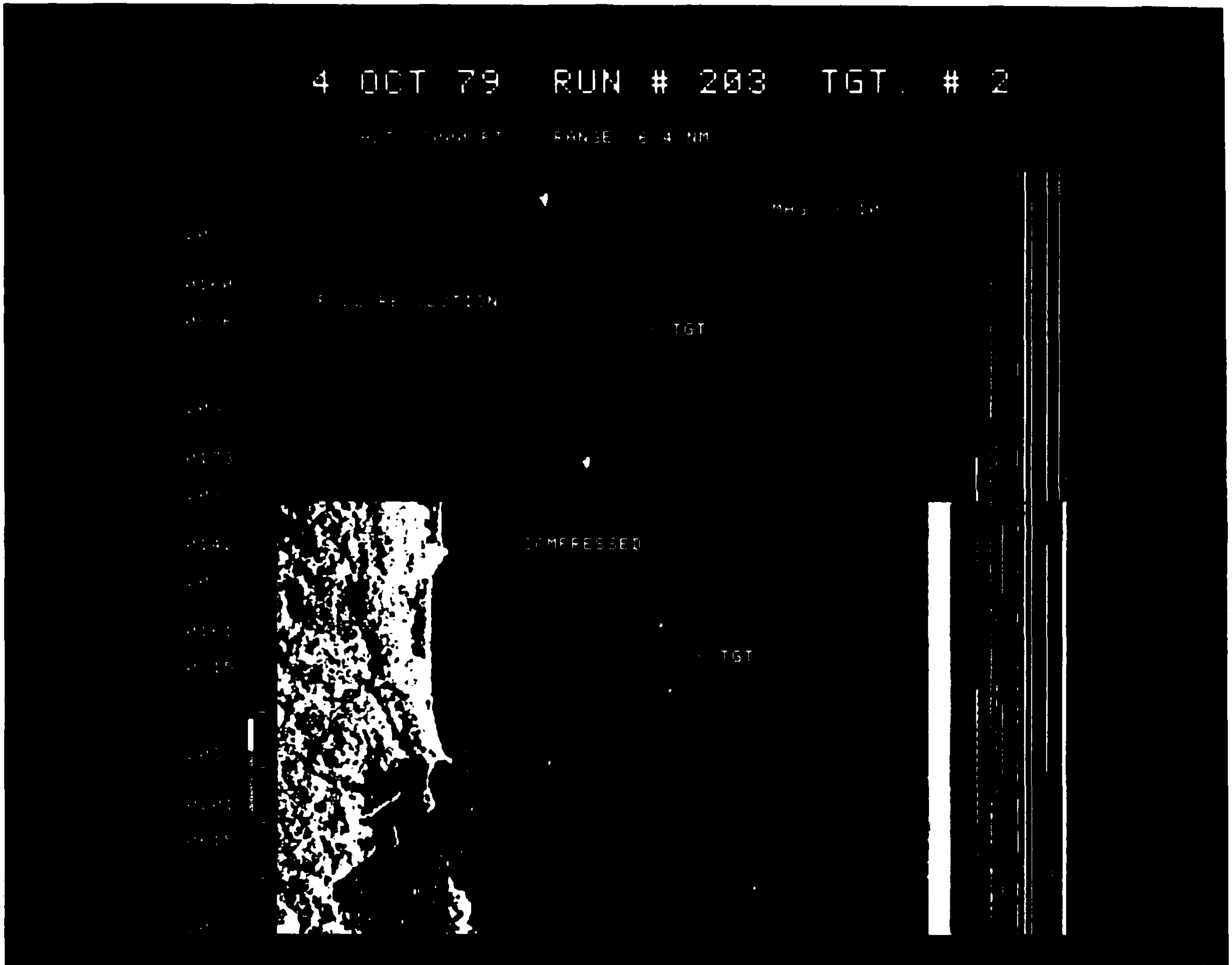

FIGURE 6. TGT #2 13-FT SMALL BOAT NASA PHOTO

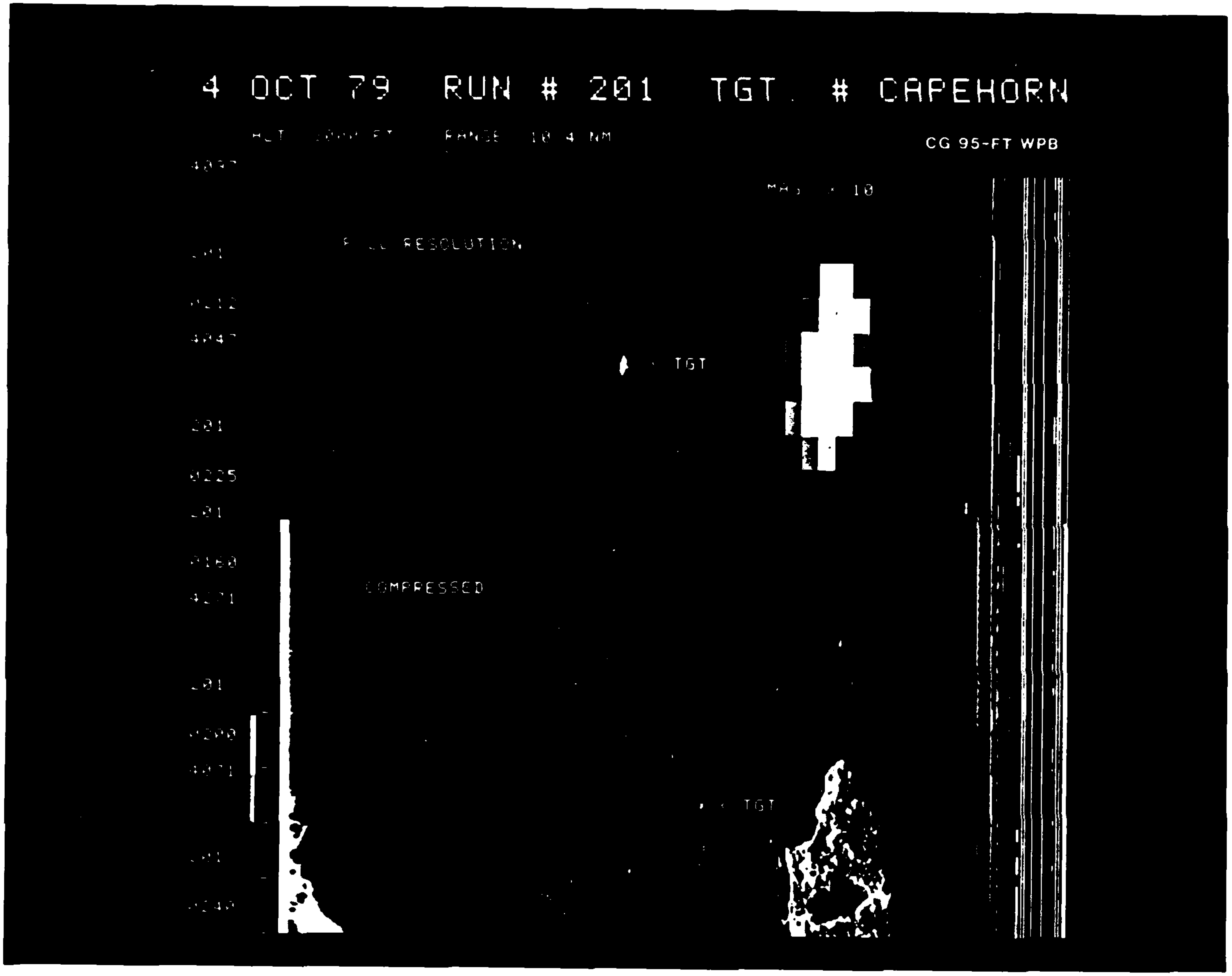

FIGURE 7. NASA PHOTO

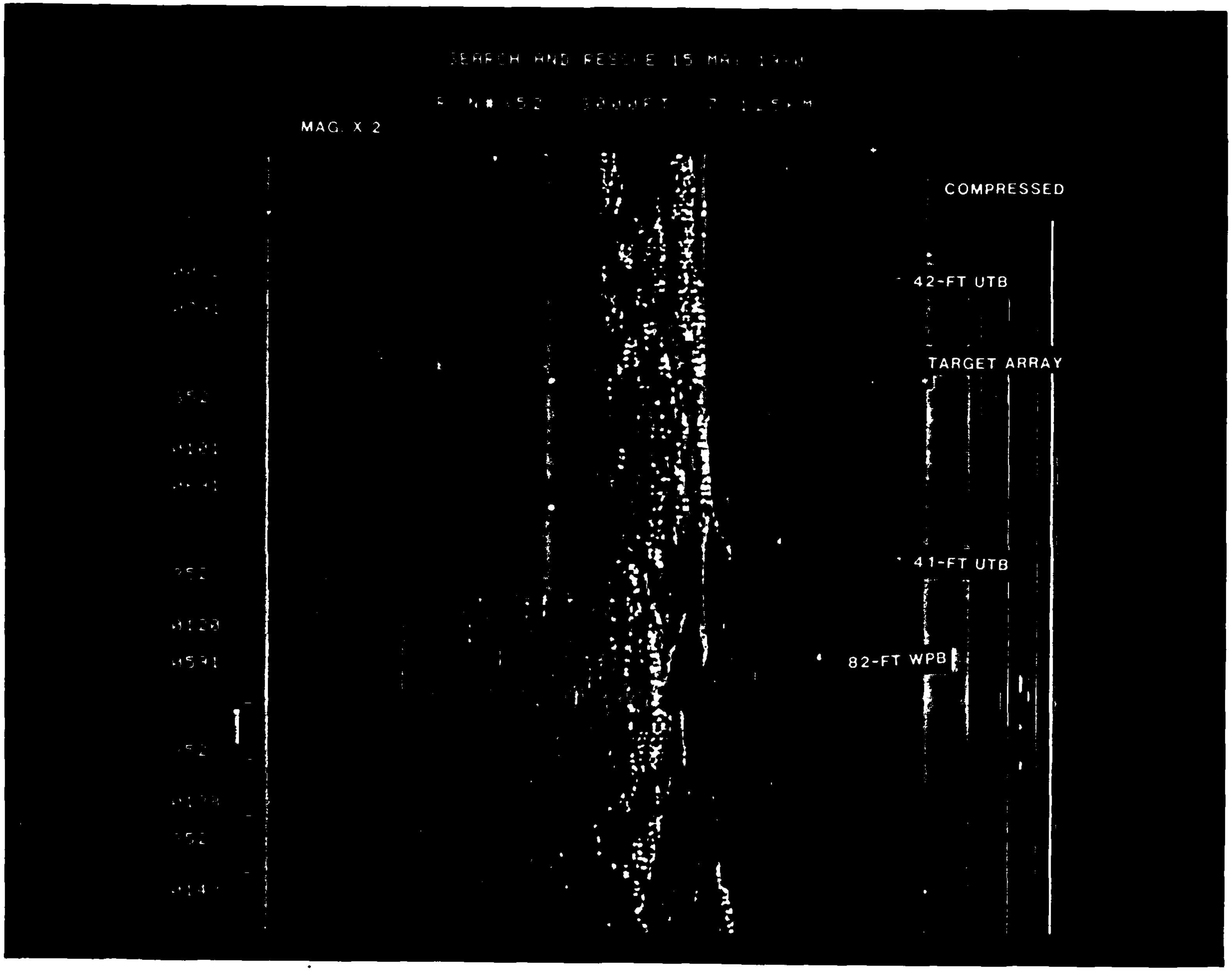

FIGURE 8.

NASA PHOTO

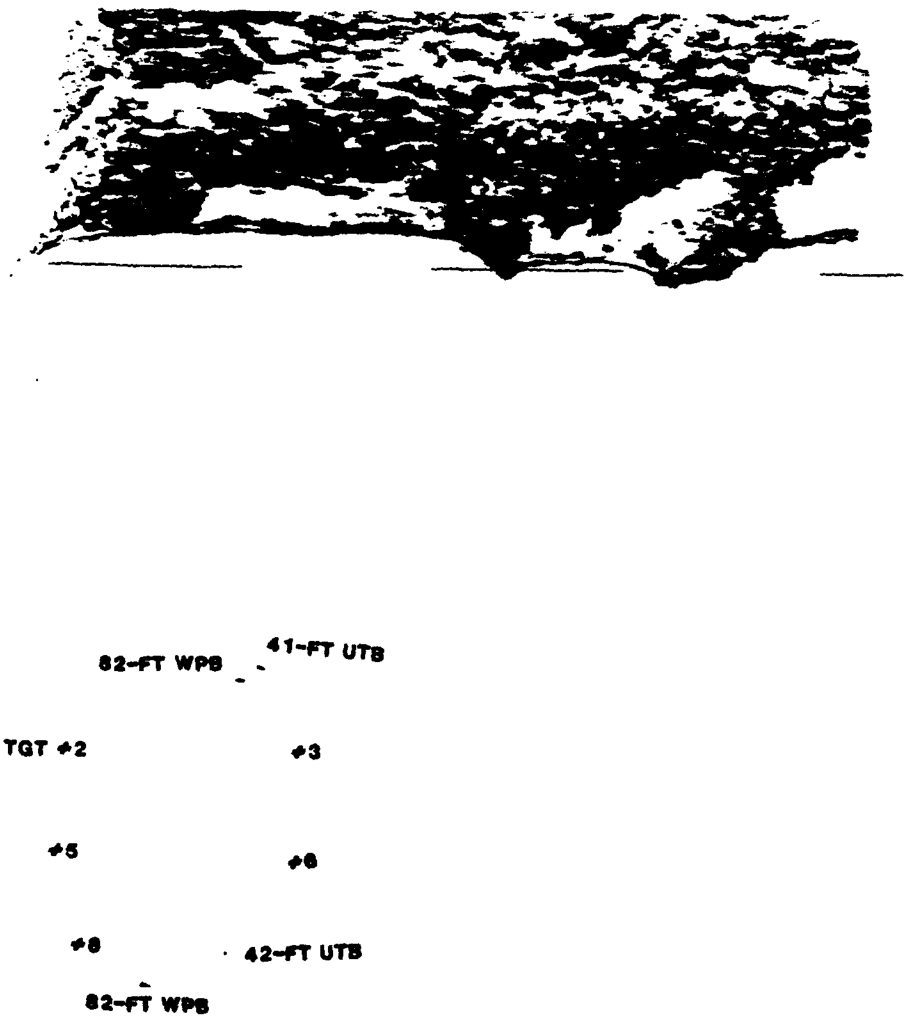

FIGURE 9.

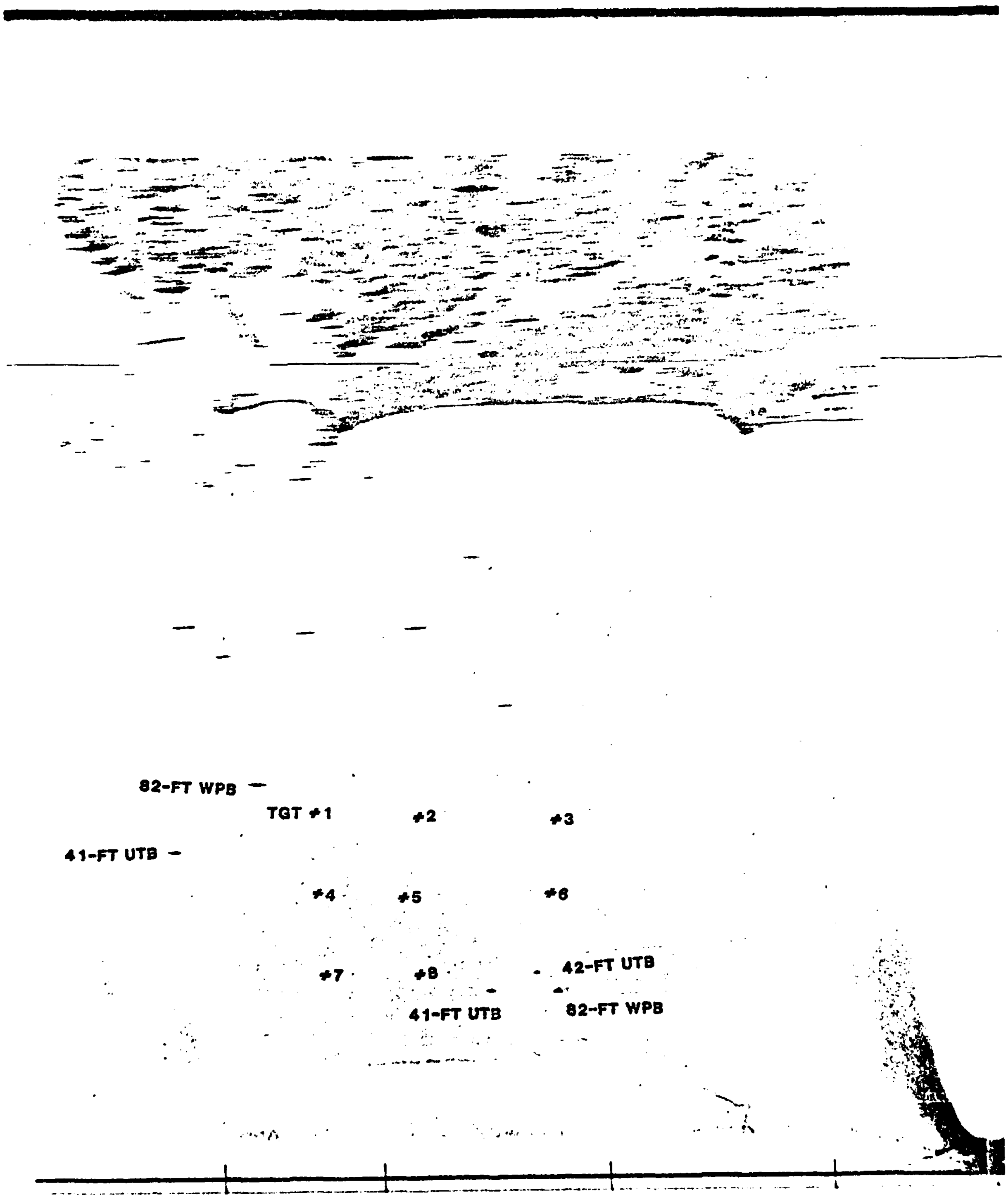

FIGURE 10.

Appendix C
METRIC CONVERSION FACTORS

1. Feet to Meters

1 foot = 0.3048 meters

Thus:

3- to 4-foot swells ≈ 1-meter swells,

a 16-foot boat ≈ a 5-meter boat, and

an altitude of 500 feet ~ a 150-meter altitude.

2. Nautical Miles to Kilometers

1 nautical mile (nm) = 1.852 kilometers (km)

Thus:

10 nm visibility ≈ 18.5 km visibility, and

a 2-nm range ≈ a 3.7-km range.

3. Knots to Meters per Second and Kilometers per Hour

1 knot = 0.5144 meters per second

1 knot = 1.852 kilometers per hour

Thus:

a 10-knot wind speed ≈ a wind speed of 5 meters per second, and

a 10-knot search speed ≈ a search speed of 18 kilometers per hour.

END

DATE
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1-82

DTIC

AD-A108 404 ANALYSIS AND TECHNOLOGY INC NORTH STONINGTON CT F/G 17/9
EVALUATION OF TWO AN/APS-94 SIDE-LOOKING AIRBORNE RADAR SYSTEMS--ETC(U)
AUG 81 S R OSMER, N C EDWARDS, G L HOVER DTCG39-80-C-80052
UNCLASSIFIED USCG-D-64-81 NL

3 of 3

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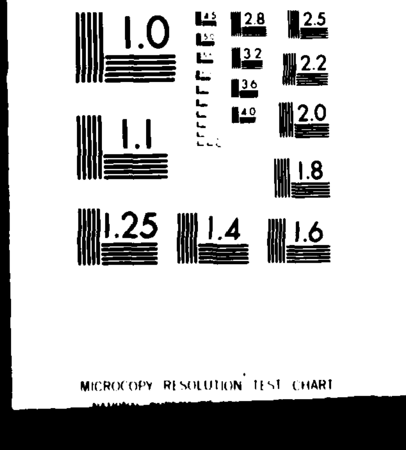

SUPPLEMENTARY

INFORMATION

AD-A108404

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
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USCG R&D CENTER
AVERY POINT
GROTON, CT. 06340

3910/721010.2

03 FEB 1982

From: Commanding Officer, CG Research and Development Center
To: Distribution

Subj: Correction to Report No. CG-D-64-81, "Evaluation of Two AN/APS-94 Side-Looking Airborne Radar Systems in the Detection of Search and Rescue Targets"

1. In subject report, Executive Summary Table 2 and Table 3-7 in Chapter 3 have incorrect column labels. The heading "Sweep Widths" should read "Half Sweep Widths," i.e., the tables contain SLAR sweep widths only to one side of the aircraft.

K. D. URFER

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